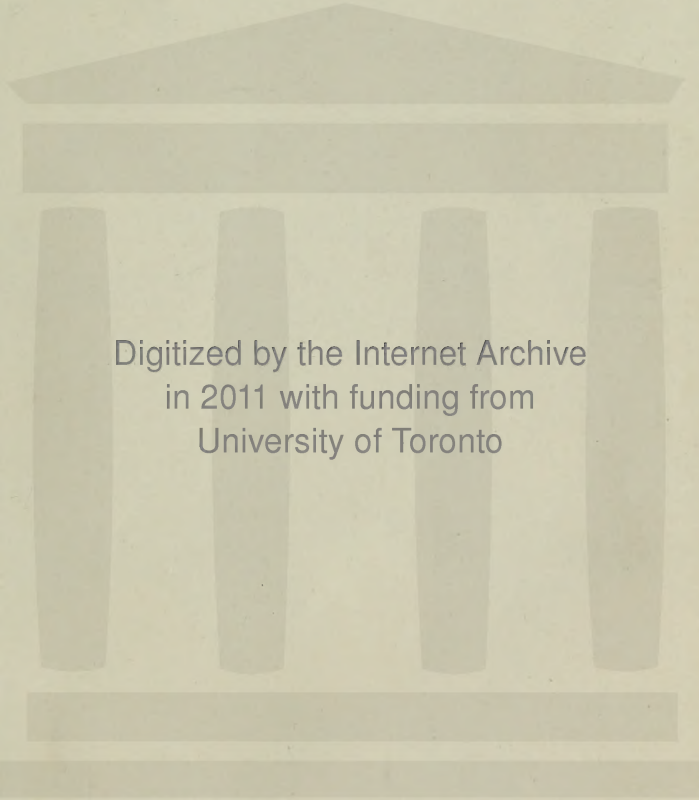
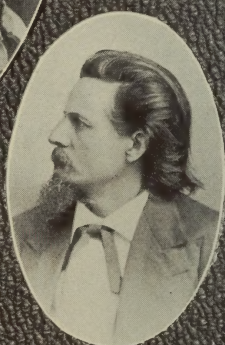
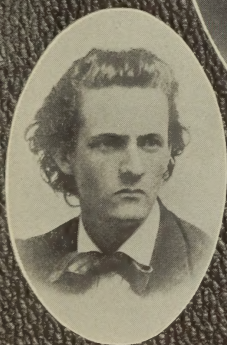
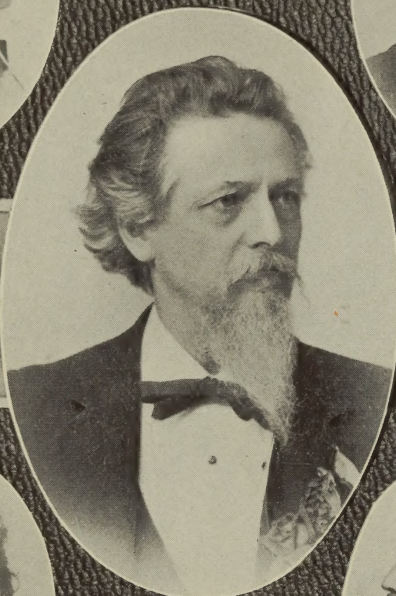
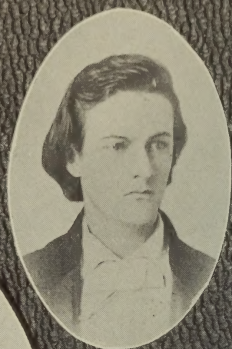
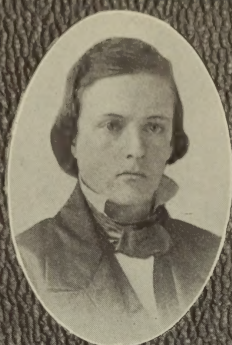


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Bonwill Photographs.

The photographs of Dr. Bonwill, presented as a frontispiece to this number of the BRIEF, have been selected by Dr. Broomell for reproduction from a series conspicuously displayed in Dr. Bonwill's office and in which he took great pride.

The profile in the upper left-hand corner was taken in his seventeenth year.

The next, passing to the right, was taken in 1852, at the age of nineteen.

Just previous to this time he had been engaged in teaching school at Hick's School House, half way between Burlington and Mount Holly, N. J., but had abandoned that pursuit to enter upon the study of dentistry with Dr. Sam'l W. Neall, in Camden, N. J.

The upper right-hand picture was taken at the age of twenty-two, while the lower left was taken in 1858, at the age of twenty-five.

The remaining photographs are of more recent date, that in the lower right-hand corner representing him as he appeared in his fortieth year.

The central picture for which, it is stated, he had a decided preference, was taken after he had passed his sixtieth year.

One still more recent, and his latest photograph, was reproduced in the October issue of this journal.

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No. 1

ORIGINAL COMMUNICATIONS.

AN EVENING WITH BONWILL.

By I. Norman Broomell, D.D.S.

"Good evening, young man, I have come to show you how to 'grind on' a set of teeth according to geometrical and anatomical laws."

Such were the words spoken by the subject of this sketch, as, passing his fingers through his gray locks, he placed his familiar grip at my feet. The time was an evening late in July of the present year, and the occasion one long anticipated and long to be remembered by me.

"Now, let us take off our coats and get to work, as I must be getting back home, I have many things to do before 2 A. M. Did I ever tell you that I do the biggest part of my brain work after the rest of you young fellows are in bed?"

"Are you using the articulator I gave you?" A nod in the affirmative was met by, "I don't believe you, or else you would have sent for the extra bows; I always keep them back to catch skeptical boys like you."

"What do you use such stuff as that for? Not for a base plate! Throw it away," putting his own command into violent execution; this supposed ideal product of the dental material makers was soon replaced, with the remark, "I prepare this kind myself."

"Now give me a fair-sized wheel. This is carborundum; why don't you use corundum? Here is an upper and lower set of teeth; I will grind them on and I will leave you this other set to do yourself, and I will bet you can't do it. There is not a man in this city that can do it. Not even the professors who try to teach prosthetic dentistry."

"Why do you always—?" "Hold on now, wait until I am through, I want to do the talking, you listen. Now you see I take these upper incisors and grind off the inner side of the cutting edge, making a bevel there of about forty-five degrees, and place them back again on the card. Now this is the first thing I always do in articulating a set of teeth. What are you laughing at? 'Articulation' is right, it is not 'occlusion.' Occlusion will do when referring to closing the lips or mouth, but it does not apply to the movements of the lower jaw through the action of the temporo-maxillary joint. If the action of the lower jaw was directly up and down we might refer to the closing of the teeth as occlusion." "Wait a minute—" "Now, what is it? Remember I said no interruptions, but go ahead, speak up!" "You acknowledge that the movement of the lower jaw is not the same in all cases, and that it is seldom directly up and down." "Yes; well what of it?" "I was wondering why it is if the movements of the jaws are not always the same that you grind the occlusal surfaces of the teeth alike in all instances." Almost before I had finished came the reply, "To compel them to be all alike as the Almighty intended they should be. When you ask that question it shows how little you know of the fundamental principles governing the teeth in man."

"Give me a pair of dividers. What, you haven't any! What would you think of a carpenter who would try to work without a saw? Well, dividers are just as essential in a dentist's hands. Did I ever show you how to square a circle? Ha, ha, ha! Well, I can come very near doing it, but never mind that now. Don't sit down, stand up here; I want you to see how I grind these bicuspid. I have stood up to 'grind on' teeth for over forty years and I feel younger to-day possibly than you do."

After thus relieving himself of an opinion doubtless based upon his own physical convictions, he took from the card, one at a time, the bicuspid teeth belonging to the upper set, and with all the enthusiasm of the most ardent student, cut upon the occlusal surface of each, from mesial to distal, a well-defined, rounded groove, converting this surface into a double inclined plane extending from buccal to palatal.

"Now, do you see the way the bicuspid. come together? They meet with all their surfaces touching. Then, while rotating the articulator from side to side, and looking in from the back, as in viewing the mouth from the pharynx, he added with en-

thusiasm: "Now, isn't it beautiful! And so perfect mathematically; after a preordained and established law; nothing could give a better idea of the wisdom of the Almighty. Now, the fact that I grind these teeth this way—you see I am doing the same thing with the molars—is not my creation, I am simply carrying out nature's law as found in the human jaws, and having as its basis an equilateral triangle."

By the time my visitor had completed the grinding of the upper teeth, all of which, so far as the posterior teeth were concerned, were treated in a similar manner, he appeared completely wrapped up in what he was doing, and the energy of his toil was only surpassed by his desire to have me fully comprehend what he was doing and saying. At one time he looked up from his work long enough to ask if he was using too many "I's." After a glance he appeared to realize that his remark was understood, and, referring to the incident which called it forth, he said: "That Western editor who had sufficient leisure to count the number of I's used by me in the publication of my personal experiences during my trip to Europe in 1889 taught me a lesson, but it was not one by which I could profit; the work which I have been doing in dentistry for nearly half a century has been in a special line, and of rather a unique character; I have not imitated or even referred to the works of others. All that I have done for dentistry has been after my own ideas of what was right, *theories* at first, facts soon afterward. Advice, although frequently proffered, was seldom accepted, this (pointing to his forehead) being my confidential and most reliable adviser. I was compelled to use the personal pronoun then, and shall continue to do so; when all your thoughts and actions are your own, it is impossible to do otherwise." After nervously consulting his time-piece, he continued his work by taking the lower incisor, grinding from the labial cutting edge the round smooth surface common to finished porcelain. This grinding was so slight and performed so quickly, that it appeared to have no practical bearing on his theory.

"Now, the proper width for these lower incisors I get with the dividers after the plans laid down in this little chart," (here unfolding a sheet filled with many complex drawings) "by placing the dividers at this point I draw a line from A to B, and from C to D we get the radius of another arc intersecting with the line previously drawn from A to B; all within this equilateral triangle; now is that clear to you?" With a desire to avoid unhappiness I

had always made it a point to agree with Bonwill, so I answered in the affirmative. "Now with the proper manipulation of the dividers we get many equilateral triangles within the main triangle, each one of which denotes the exact size and location of one of the teeth in each jaw."

Venturing another question, I said: "You always take four inches as the size of the primary equilateral triangle?" "Yes." "And always go through the same geometrical figuring to obtain the position and width of each individual tooth?" "Yes." "And always grind the teeth in about the same manner before mounting them in the base plate?" "Yes; what of it?" "Do you not find that you get practically the same results in all cases? Do you fail to recognize a marked variation in the movements of the mandible, in some directly up and down, in others a more or less lateral motion?" After a hearty laugh, he said: "Of course I know it, to be sure I do, there are almost as many movements as there are jaws, but there is only one normal movement of the lower jaw, only one intended by the Creator, that is the movements of all human jaws should be the same; why, how could we consider it any other way, when we see so beautiful and so mathematical a design employed by the Creator in the construction of the lower jaw. There is only one way by which the exact law governing the movement of the lower jaw can be carried out, and that is to articulate the teeth in such a manner that they will compel a perfect mechanical movement of the mandible, and in this way and in no other you will have perfect mastication.

"Now you see in grinding the lower bicuspid and molars I have intentionally refrained from cutting off from the lingual side, I do this because the teeth are always made with their lingual cusps too short, they should be made much longer, and the only way to overcome this is by grinding from the buccal cusps alone."

Bonwill now proceeded to arrange the teeth more carefully in position on the base plate, placing one at a time and viewing it in every direction, his face taking on an expression of profound admiration as he said, "Now look at that, could you imagine anything nearer perfection? All that nature wants is a chance to right herself, and with this beautiful arrangement of the articulation of the teeth we do a great deal to assist her in this direction. This reminds me of the boy in my laboratory; did I ever tell you about him? It took him a long time to get on to the method of

mounting teeth according to my rules, which are nature's rules, notwithstanding he was apt and quick. One day I took a case from his hands and said 'Let me do that, you're getting it wrong.' When I returned them to him he was quick to observe an intended imperfection which I had left. Taking them again I corrected the defect and handed him the case. Instantly he said, 'That's it, that's it; why, doctor, if there is any such a thing as a God, he couldn't do better than that.' " While I was unable to see the force of this incident, Bonwill evidently thought it carried great weight, referring to it on numerous private occasions as well as in his occasional lectures to students.

By this time (11.30) I was so engrossed with Bonwill's whole-souled desire to have me understand as he understood, to think as he thought, that I determined to get more out of him, not particularly in the line of the articulation of teeth, but in matters of general practice. In the meantime a little lunch had been provided in the dining-room and of this my visitor was invited to partake. His ready acceptance without even referring to the time of night encouraged me in the belief that he had more to say. After being seated, about the first thing he said was, "Well, what do the boys think of me by this time? I wish I knew; well I think I do know; but we will not talk about that now. Before it gets too late I want to show you how I pack amalgam." He had evidently anticipated this demonstration, for as he spoke the words he reached down and took from his grip all the requisites necessary to put his remark into execution. "Here is a lot of amalgam for you; I don't sell this, I give it away for what it costs to make it. I do this because I want everybody to use it, and I want everybody to use it because I know it will save teeth better than anything else. You fellows don't know how to use amalgam, that's the reason it fails, and then you think you can get more money for gold; ah, that's what most of you are after, the money, the money; it isn't the desire to save teeth. Now, with this I can do both; I can save teeth and I can get as much money for it as by using gold. Why do we impose a fee? Not for the material used, but for the service rendered and that service means the saving of teeth."

Simultaneously with this talking Bonwill was "packing amalgam," as he termed it, using for a cavity a steel plate in which were drilled a number of holes of various sizes, these passing entirely through the plate. In mixing the alloy he used the palm of

his hand for a mortar, and with the ball of his thumb for a pestle the mass was amalgamated with true Bonwill enthusiasm. The amalgam was then squeezed only moderately dry and dropped into the metal cavity in quite large pieces. Then came the most interesting part of the demonstration; grasping a plugger, one of his own design, of course, because Bonwill seldom made use of those planned or designed by others, he proceeded to force the alloy into the cavity. Force is the only expression to use in describing his methods.

The heavy handle of the plugger was taken by the hand of the operator, not by the finger and thumb, but by the entire hand, in this way bringing into action the wrist muscles, the plug receiving the combined force from the hand and wrist at each punch or push of the instrument. It might be added that the force above referred to was just as much a factor during operations in the mouth, and anyone who has had the privilege of seeing some of Bonwill's amalgam work can testify to the value of the methods which he employed.

"See, the cavity is now almost full, and I am bringing all the surplus mercury to the surface by pressure on this bibulous paper, which absorbs it. In the bottom of the filling there is no mercury and the metal is almost as hard at that point as it will ever be."

After turning over the metal plate I found this to be the true condition, the filling was already so hard that no impression could be made upon it with the sharp point of an instrument.

"Now as I approach the surface I take up the surplus mercury by the addition of fresh alloy, rubbing it in with this round burnisher; rub it hard, then add more fillings and rub again; keep this up until the surface of the filling is as hard as the bottom.

"Now it is finished, and I will show you what a perfect mass I have made," and taking an iron punch and a hammer, he proceeded to force the plug from the hole in the steel plate, which was accomplished only by a series of heavy blows. "There, it is almost as hard and compact as the steel plate itself." And so I found it; the entire operation, which had occupied but a few minutes, had resulted in the production of a metal plug which, in the mouth, would defy the force and strain of mastication. "Why it's nearly one o'clock, I must get out. Wish I had time to tell you more about filling teeth with amalgam and the way I form a matrix for the purpose, by using a rubber-dam clamp and modeling composition or gutta-percha. Also how I use Abbey's old-

fashioned gold foil, and the use of paraffin in connection with oxy-phosphate.

"But you're like everybody else, you don't want to listen. Good night, I'll see you at Asbury Park."

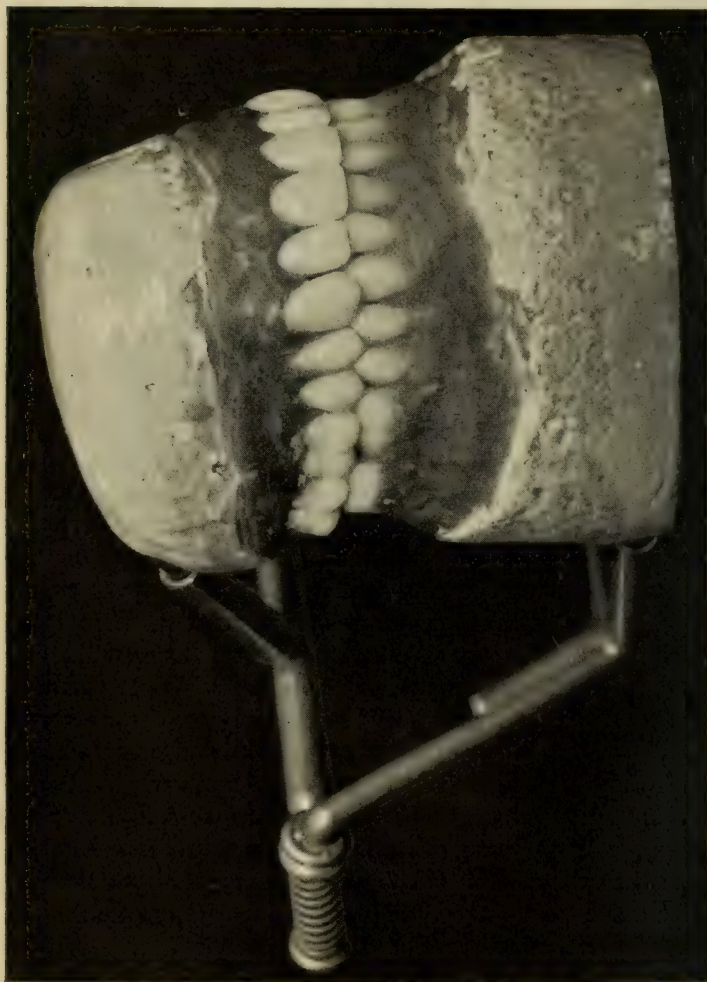
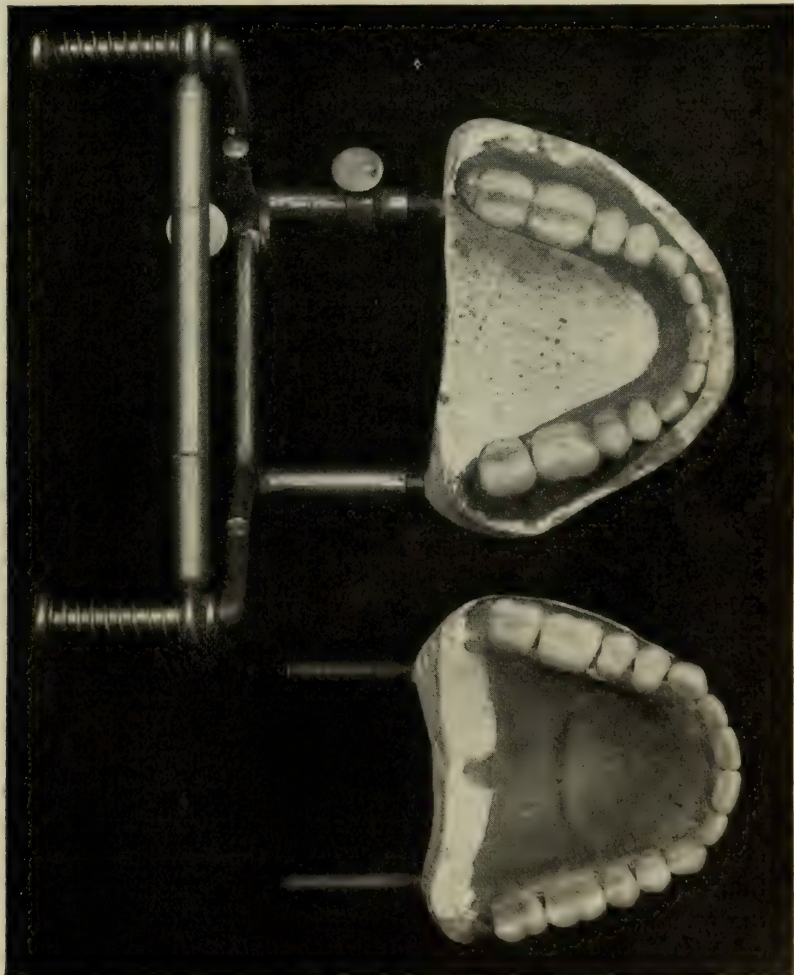


Fig. 1

The accompanying illustrations (Figs. 1, 2 and 3) show the result of Bonwill's work during the evening, these probably being the last teeth mounted by him. The specimen, which is in my possession, remains just as he left it. Little attention was given to beautifying the work by contouring the wax base plate material, or in the method of attachment to the articulator.



Figs. 2 and 3.

CLINICAL DEMONSTRATION OF DR. BONWILL'S
METHODS OF PRACTICE.

*Reported by Geo. V. I. Brown, B.A., D.D.S., M.D., C.M.**

The following report of a clinical exhibition of patients, operations and methods, given by Dr. W. G. A. Bonwill, in his office in Philadelphia, June, 1897, before a committee appointed by the Section of Stomatology of the American Medical Association, the substance of which, though not properly within the limits of the purpose for which the section was organized, and therefore ineligible for publication in the columns of the official journal of the American Medical Association, is, nevertheless, so full of matter of such great importance to the dental profession that it is hoped its publication at this time, and in the manner contemplated, may lead to the preservation, with credit to their originator, of the methods described.

The committee were shown some forty patients. Work was thoroughly examined, and all were interrogated with regard to the length of time since the fillings had been inserted, the number of years they had been under Dr. Bonwill's care, and their opinions generally. These questions, as every one will know who remembers Dr. Bonwill's almost absolute deafness, could be frankly answered without fear of being overheard by Dr. Bonwill. There was, therefore, no possible reason why the most perfect truth should not have been told. Such a demonstration each of us felt it had never been his privilege to witness before, and doubtless never would again.

One or two of the oldest had been under Dr. Bonwill's care for some forty odd years; many more than thirty years; others a shorter period, and some were very young patients. To one who had been accustomed to see Dr. Bonwill operating under the disadvantages of large public clinics, where everything possible constantly occurred to increase his natural nervousness, the beautiful work, with its careful polish and the exactness of everything in his private office was a revelation, when compared with the opinion too often expressed, that his work was rough and crude. Nothing could be further from the truth. Down to the smallest detail, all was neatness, exactness and perfection. The

* Chairman of a committee appointed by the Section on Stomatology of the American Medical Association.

impression was a profound one, and doubtless many years of development will be required before we can fully comprehend the merit and value which underlay that which we only saw upon the surface.

As everyone knows, Dr. Bonwill bound his faith to Abbey's gold foil, claiming for it properties which other kinds did not possess, and his fillings, made as he told us, with this foil, would aggregate a large number, and if it were possible to roll them all together would make a sheet of gold marvelous when considered as having been put together, piece by piece, by one man.

The cavity outlines were quite marked by contrast to the square, more box-like forms advocated by many teachers at the present time. In his work every corner was rounded, every outline a perfect curve, but the boldness with which cavity walls had been cut away on the lingual and buccal margins, showed that many years ago he had anticipated, in its fullest extent, the value of extension for prevention. The contour of the filling in each case was bold and clearly marked, points of contact showing a careful consideration of most favorable adjustment.

The plus contours shown were quite astonishing (cantilever size, the author called them), many cases showing that, where teeth had been lost in early life, and crowding together had narrowed the space to some extent, but had caused a tipping forward, particularly of the molar teeth, endangering the future usefulness of the tooth through mal-occlusion, with a boldness characteristic of the man, he had not hesitated to extend his gold forward in a rounded, tapering form, something after the manner of the horn of a blacksmith's anvil until the point rested securely in contact with the distal surface of the tooth in front. Only those familiar with the peculiar properties of gold and the difficulty of perfect condensation of an over-hanging mass in such form as to give secure resistance in all directions, can appreciate the triumph that the success of this work meant. As for the value of supporting leaning teeth in that manner, and its import upon the future usefulness and long retention of the teeth, I think we have all of us yet much to learn before this can be fully appreciated.

The occlusal surfaces in many instances showed an attempt, at least, to reproduce angles and cusp lines rather than the smooth concavity with which we are, as a rule, familiar. The broadly over-lapping margins, both of gold and amalgam fillings, suc-

cessfully carried out the design of clasping and supporting the frail walls of teeth rather than to depend solely upon support of the filling by the walls, and were a revelation to any one who had been led to believe that alloy fillings could not be relied upon for this purpose, by reason of insufficient edge strength.

The committee was not given, as fully as might have been, the nature and manner of working these alloys, too much of other things crowding out its minute consideration.

In many teeth gold and alloy were mixed in the same tooth. In almost every instance the color of the alloy had remained untarnished after the first evidently careful polishing, and each, of all these fillings, whether gold, or amalgam, or both, seemed to be doing service with perfect satisfaction. Amalgam seemed to last and protect against caries as well as gold, and vice versa, the lesson of it all being borne strongly in upon us that, beyond and above the details, which we all recognize as important in filling of teeth, there was a something in the work that this man did which rendered it capable of immunizing that particular portion of the mouth against the inroad of bacteria.

Many patients whose teeth showed that at some previous time there had been marked tendency to caries, reported having had almost no fillings placed in their teeth since the completion of the first general work, after coming under Dr. Bonwill's hands. The result certainly justified the means in every particular.

Pink gutta-percha fillings packed securely in proximo-occlusal cavities, extending across the interdental space to the next tooth, were to be seen in a number of mouths. These, Dr. Bonwill explained, were inserted for the purpose of effecting a slow but perfect separation. He left them about one year, after which, sufficient space was gained to admit of the perfect contouring of the fillings and the sensitive dentin lost much or all of its sensibility, so that the excavation for the gold or alloy fillings gave little or no pain, and there was slight danger of exposing pulps, a thing which seldom occurred in his practice.

Dr. Bonwill had great faith in gutta-percha as a stopping for children's teeth, and for use as just described. He claimed that the slow separation it effected allowed the adjustment of the tooth moved in its relation with the opposing one in the jaw and prevented the likelihood of future trouble from mal-occlusion, particularly in regard to pyorrhœa alveolaris. Among all those cases none were found to have active symptoms of pyor-

rhœa, but several showed by the denuded surfaces of the roots and recessions of the gums, that they had been so affected, yet none were found to be noticeably loose, and there was an entire absence of discharge.

Very few crowns were seen, the extensive contour operations seeming to have reduced the necessity for their use to a minimum. Few artificial dentures were shown, such as were, being partial and having clasps for the natural teeth. The method of adjusting these clasps, as also Dr. Bonwill's now famous methods of articulation and arrangement of the teeth in the arch, according to his geometrical principles, are all fully set forth in his various writings, and need only mention here in that they seemed to be fully equal to the praise that their author himself has bestowed upon them.

His views on cataphoresis or the plain current of electricity are better set forth in the paper read before the Section of Stomatology of the American Medical Association, at its meeting held in Philadelphia in June, 1897, than would be possible in any report the committee could make, particularly since no demonstrations of this sort were shown, as it had been expected there would be, nor were any demonstrations given of rapid breathing as a means of performing painless operations by diversion of the will, but the writer can fully testify to the fact that nearly twenty years ago he heard Dr. Bonwill explain the use of this method in performing minor surgical operations, and its constant use during some few years past has absolutely demonstrated that an extremely valuable truth underlies this apparently simple experiment.

No fistulous openings were observed in any of the mouths; the gums and mucous membrane in all cases seemed to be in such healthful condition as would naturally be expected with those who observed the minute instructions given them.

In his own peculiar, very peculiar, way, one might say, Dr. Bonwill seemed to possess, not only the absolute confidence of his patients but also their simple and almost blind obedience to all his wishes, they submitting, apparently as a matter of course, to his most arbitrary exactions.

Some patients were shown for whom, in their earlier years, the method advocated by Dr. Bonwill, of cutting V-shaped spaces upon proximate surfaces of the anterior teeth, with little noticeable change upon the labial aspect, but quite sharply cut away

upon the lingual side, in order to facilitate self-cleansing with a view to the prevention of caries, had been practiced. So far as the result was concerned, he seemed to be highly successful in accomplishing that which he desired.

In Dr. Bonwill's own words, it was a lesson of forty-two years' work, and in answer to his question whether it showed the hand of art or mechanism, we would unreservedly say that in a high degree art and mechanism paid silent tribute to the wonderful genius, through the instrumentality of which so much had been accomplished in the saving of human teeth, giving, as it did, one man the power to exert an influence upon human life far beyond the possibility of measurement by present standards.

THE MOST REMARKABLE CLINIC IN THE HISTORY OF DENTISTRY.

*Reported by Eugene S. Talbot, M.D., D.D.S.**

At the meeting of the American Medical Association, in Philadelphia in 1897, Dr. Bonwill read a paper before the Section on Stomatology upon the subject of "Cataphoresis; or, the Use of Electricity in Obtunding Sensitive Dentine." In closing the discussion Dr. Bonwill extended an invitation to a committee (appointed by the chairman) to visit his office at any time most convenient to them, to observe his method of producing anæsthesia by rapid breathing. The chairman, Dr. R. R. Andrews, of Cambridge, Mass., appointed as a committee Drs. G. V. I. Brown, E. S. Talbot, M. H. Fletcher, H. W. Gillett and Geo. Eames. The committee met at the appointed hour, 9 o'clock, the following morning and, much to their surprise, found his spacious reception room filled with patients ranging in age from 14 to 78. These patients represented the extensive field of his practice. They were from Delaware, New York City and Philadelphia, and had been summoned by telegraph and messengers. This illustrates the enthusiasm with which Bonwill entered into every undertaking. He had spent the entire night in this work. He had evidently enlarged, in his enthusiasm, the scope of investigation of the committee, since he proposed not only to illustrate his methods of practice at the present day in the younger patients, but also the results of his early practice in the elder.

* Secretary of a committee appointed by the Section on Stomatology of the American Dental Association.

Bonwill possessed perfect control of his patients. He would not operate for a patient who did not carry out his instructions to the letter. He frequently sent patients home and refused to operate, as they had not followed instructions given at a previous sitting. The cleanliness of all of his patients was remarkable. No inflamed gums or pus oozing from about the teeth was to be seen. The truth of his frequent statement "that he did not know what it was to have a case of 'pyorrhœa alveolaris' in his practice," was demonstrated by the mouths on exhibition. The committee had a very good opportunity, in the examination of the different patients, to see how he managed; the committee's questions to patients were answered in the presence of Bonwill without his knowledge, because of his deafness. The patients loved him, but said that they did not dare to visit his office for his services without complying with his instructions. Each patient was required to visit his office from four to six times a year and undergo a thorough inspection. If the brush was not being used in a proper manner or reaching certain localities they were instructed how to proceed. He gave his patients tooth brushes and tooth soap, so that there should not be the slightest excuse for unclean mouths. One of Bonwill's pet methods was the preparation of the teeth to secure getting wide spaces between them. The approximal cavities were partially prepared and red gutta-percha warmed and crowded in between the teeth; all approximal cavities were treated in this manner. The patient masticated upon this from six months to two or three years. By this method the teeth are wedged apart, making wide spaces, without inconvenience to the patient. The teeth were then contoured in such a manner that the occlusion was at the grinding edge, thus giving room for the alveolar process and firm foundation for the gum tissue.

Bonwill believed that the narrow alveolar process between the roots of the teeth failed to nourish the gum margin, thus causing interstitial gingivitis. Every operation upon the mouth was performed with the utmost skill, in a sense not understood by the average dentist. Bonwill was a master workman. His operations were perfection. The contour of the fillings, whether gold or amalgam, conformed to the movement of the jaws and the occluding teeth. Although Bonwill was an expert gold operator, many of his operations were done with amalgam, as he did not believe in crown and bridge work. In this he made another strong point as to the prevention of so-called pyorrhœa alveo-

laris and unhealthy mouths. Crown and bridge work being a source of chronic irritation to the gum margin and the roots of two or more teeth supporting and doing the work of many more, and accumulating filth. Bonwill, in place of this, would build up the approximal surface and sometimes an entire crown (by introduction of screws), and polish the margin around and under the gum in such a manner that irritation or decomposed food and other irritants could not take place. Amalgam fillings were not confined to the posterior teeth. In many cases the anterior teeth were filled and contoured with amalgam. In the case of one old gentleman both approximal surfaces of all superior and inferior incisors, as well as the bicuspid and molars, contoured with amalgam, had been doing good service for over thirty years. This case was of unusual interest, since osteomalacia (senile absorption of the alveolar process) had taken place, exposing the necks of all the teeth. The gums, however, were healthy, and no pus was present. The cavity margins at the approximal surfaces were smooth and free from decay; here was a fine opportunity to note the effect of wide approximal spaces.

In the place of bridge work, Bonwill had invented a removable plate (with which the profession is familiar). This little plate was so nicely adjusted that it could be worn as a single tooth, or four or five could be attached when necessary. Five or six of these were exhibited, showing different methods of adjustment in favorable and unfavorable cases. Bonwill's method of adjusting artificial dentures and their practicable application was demonstrated in many mouths. He certainly knew how to arrange and adjust artificial teeth to the welfare of his patients. Patients were exhibited who had been wearing these dentures many years, some of which were very difficult to adjust. All were well pleased, as well they might be.

A few words about the reception room and office are necessary to complete. No one but Bonwill could arrange such an office. His æsthetic taste enabled him to furnish and fit up an office which resembled an art room more than a reception room to a dental office. The moment a patient entered the room he forgot the object of his visit. Art furniture, works of art about the room and upon the walls produced all the effects of suggestion (intentionally) upon his senses. Stand or sit anywhere, art books and bric-a-brac lay in profusion. These were so arranged that many could be handled at will. So interested would the pa-

tient become that time and dread were swallowed up and forgotten. One of the most singular features of Bonwill's life was that he was not a believer in evolution. He believed that the equilateral triangle was the basis upon which God constructed mankind, way back in the dark ages, and upon that basis he would remain until eternity. As a singular contradiction of this belief his patients could examine a series of about thirty photographs of Bonwill* in a convenient corner of the reception room, demonstrating his evolution from childhood to the very year of his death. In these he took a natural but illogical pride, since they illustrate the helpless child developing year after year, grasping new ideas as time passed by, adding nerve association to nerve association until he became a genius. He was emphatically a man who bettered the world by living in it.

REPAIRING RUBBER PLATES.

Allow me a little space to describe a simple method of repairing rubber plates.

With wax fasten the fractured pieces together and insert the palatal surface in plaster. Cut a narrow section through the fracture, and burr the adjoining surfaces one-eighth inch deep and one-quarter inch wide. No holes, dovetails, nor grooves are needed, but simply pack the fresh rubber with a hot spatula and flask.

L. P. Haskell.



* For a selection of these photographs see frontispiece - EDITOR BRIEF.

ABSTRACTS AND SELECTIONS.

A NEW METHOD OF REDUCING OLD DISLOCATIONS OF THE LOWER JAW.

Theodore A. McGraw, M.D., Professor of Surgery in the Detroit College of Medicine.

Having failed to reduce an ancient dislocation of the lower jaw by the usual methods, I was forced to invent a procedure which is so simple and yet so effective that it seems to me worthy of record.

James Loder, aged 32 years, while walking in his garden on the morning of June 6th, 1898, suddenly fell, paralyzed in his left arm and leg. The history of the case is not clear, and it is uncertain whether his jaw was dislocated when he fell or immediately afterward while yawning. However that may be, the symptoms of dislocation made themselves manifest immediately after the fall and continued without intermission until I reduced it. There was a gradual but nearly complete recovery from the paralysis of the leg and thigh, and to-day they seem as sound and powerful as their fellows. The left hand and arm, however, still show the effects of the stroke. The hand especially is shrunken and stiffened. Its muscles are atrophied and its motion is much impaired. The evident paralysis apparently blinded the man's many physicians to the true nature of the deformity and loss of function of the jaw.

His difficulty of speech was referred to a paralysis of the muscles of the mouth, and the inability to close his mouth to spasm and permanent contraction of the depressor muscles of the chin. It was not until October, when he fell into the hands of Dr. David Inglis, that a correct diagnosis was made of his injury. About the middle of October, Dr. F. W. Robbins made a prolonged but unsuccessful effort to effect the reduction of the dislocation with the patient under anæsthesia.

I saw him for the first time on November 2d in my clinic at St. Mary's Hospital. I found a man of magnificent proportions and great muscular development, with typical symptoms of a bilateral dislocation of the lower jaw. There were marked hollows in front of both ears. The jaw was open and thrust forward so that the chin protruded. The motion of the jaw was extremely limited. The teeth could not be brought together;

mastication was impossible, and the speech was much impaired. During the five months which had elapsed since the injury, no improvement had taken place in the motion of the jaw. I was unable to discover the cause of the paralysis. He had not been ill before, and the suspicions entertained of syphilis were not confirmed by his history or by any existing symptoms. His heart sounds were clear and his urine was normal. It is possible that he may have suffered from some form of embolism. The man was put under chloroform, and I made a protracted effort to put the jaw in place by traction, by inserting wedges between the teeth, by Nélaton's method, and in fact by all methods which could be used without especial apparatus. I failed completely, and could not see at the close of the trial that the condyles had been stirred in the slightest degree from their abnormal position.

On November 9th I made a new attempt on a different plan. I provided myself with a strong steel hook; it was made especially for the purpose, with a short prong bent in such a way as to run parallel to and near to the shaft. The space between the prong of the hook and its shaft was just wide enough to permit the hook to pass over and grasp the jaw at the sigmoid fossa. I purposed making incisions under each zygoma, separating the fibers of the masseter, passing the hook through in front of the condyle on each side and over the bone at the sigmoid notch, and then pulling downward and backward until the condyle was disengaged and slipped into place. In carrying out this plan, I made first a T-shaped incision below the right zygomatic arch. I found it easy then to pass the hook through the masseter by separating but not dividing its fibers, and to fasten it over the bone in front of the condyle. Pieces of cork were inserted between the molars as far back as possible, and an assistant was directed to pull the chin forward and upward with all of his force, while I myself made traction on the hook. This was continued over fifteen minutes before I could feel the jaw yield to the strain. It was rendered more movable, but could not as yet be replaced in its normal position. I now made a straight and short cut under the left zygoma and succeeded in passing the hook as before. Repeating on the left side the efforts I had made before on the right, I had soon the satisfaction of feeling the bone slip into place. The chin fell back to its proper position; the teeth were brought together, and motion was restored. The jaw was kept bandaged for two weeks, and all motion forbidden. The patient

took nourishment in fluid form without opening the mouth. It was interesting to note how, after a few days, the jaw seemed to settle more and more into its normal relations. Directly after the operation there remained a slight projection of the teeth and an abnormal fullness over the joints. This gradually disappeared, and the man left the hospital with the form and function of the jaw perfectly restored. The operation was followed by some inflammation and suppuration, which, however, soon subsided, and his recovery was perfect. I found on trial that the first incisions, those made on the right side, were unnecessarily long, and when I operated on the left side I contented myself with a straight cut about an inch in length. I am satisfied, however, that this, too, was longer than necessary, and in another case I should content myself with the very smallest incision which would permit the hook to pass through the muscle and over the jaw. The fibers of the muscle are easily separated, and the hook can be passed over the sigmoid notch without exposing the bone to view. On traction the muscle would yield and the elasticity of the skin would make no opposition to the downward pull. Although I have found, in several systematic works on surgery, the advice to proceed, in case of failure to reduce the dislocations of the jaw to operative measures, it is curious that no such author whom I have been able to consult has described any such operation or cited any cases. The only cases of operations made for this purpose which I have been able to find in the periodical literature were:

(1) That of Brockway.* A bilateral dislocation of thirteen months' standing in a woman 30 years of age, after unsuccessful trial of other methods, was reduced by making incisions below the zygomas, exposing the condyles and the glenoid fossæ, and prying the condyles out of their abnormal positions by some blunt instrument. The use of the jaw was fully recovered.

(2) Two cases of Dr. R. H. M. Dawbarn.† Dr. Dawbarn presented a patient who had suffered a long time with an unreduced bilateral dislocation of the lower jaw. Several unavailing attempts had been made to reduce it. Dr. Dawbarn had made incisions almost dividing both masseter muscles, enabling him to reach the displaced bone and pry it back into place. The result was permanent and satisfactory. In another case the speaker

* Johns Hopkins Hospital Bulletin, May, 1890.

† New York Medical Journal, March 12th, 1892.

had been able to effect reduction after nearly dividing only one of the masseter muscles.

(3) Mazzoni, of Rome,* has described an operation for the relief of an irreducible dislocation of the lower jaw of eight days' duration. He resected both condyles, and after three months' treatment had a successful result.

Old dislocations of the lower jaw are not common. The inconvenience arising from the injury makes the patient generally clamorous for aid, and the symptoms are so pronounced that mistakes in diagnosis rarely occur. The reduction of the recent luxation is usually not difficult, and cases of this kind are rarely neglected so long that the bone becomes fixed in its abnormal position. As regards the instrumental methods in vogue for the reduction of difficult dislocations of the jaw, they are all based upon the use of force exercised within the mouth by means of wedges and levers. The fulcrums for this leverage are the molar teeth, upon which the instruments rest and which are pried apart. But force applied within the mouth is exerted at great disadvantage. In an old dislocation, a pressure applied to the molar teeth sufficient to break adhesions, stretch the contracted temporal muscles, and disengage the jaw must endanger the teeth. How many such teeth have been broken in attempts at reduction does not appear in the records. Probably the surgeons have thought the matter too trivial for mention, and yet it is no small matter to suffer the loss of molar teeth. However that may be, there will be occasional cases which will resist all such efforts at reduction. For such, the surgeon has a choice of two operative procedures, the one that adopted by Drs. Brockway and Dawbarn, of incisions over the glenoid cavity and through the masseters, the exposure of the injured bones, and then reduction by prying the condyles out of their false position by means of chisels or similar instruments. In so doing the fulcrum of the lever must be the zygoma itself. The other method is that which I have just described. When it is taken into consideration that by the use of a hook and traction it is not necessary to expose the bone or joint, or to cut the masseter across its fibers, I do not think that there can be any question that my method is the simpler and better. In the one case which I have reported, I made incisions unnecessarily long. I know now that the opera-

* *Gazeta Medica di Roma*, 1877, No. 4.

tion could be done through a cut so small that it would be practically subcutaneous.

For the investigation of the literature of this subject, I wish to express my obligations to the National Bureau of Medical Bibliography in Washington.

Medical Record.

THE EFFECTS OF CERTAIN PROPRIETARY MOUTH WASHES UPON THE TEETH.

By H. Prinz, B.Sc., D.D.S., St. Louis, Mo.

At present the quality of a mouth wash seems to be judged by its antiseptic power only. From a recent paper published by Dr. Peck,* of Chicago, Ill., we learn that out of eleven proprietary preparations only four restrained the growth of the microorganisms, if used in definite proportions, and of these four liquids, three owe their effective anti-bacterial power, more or less, to the quantity of formaldehyde present. The other one—sanitol—is so much unlike the other preparations that it cannot be well classified with the rest.

Almost all of these modern dental antiseptics contain boric acid in combination with benzoic acid, thymol, menthol and the addition of essential oils, such as eucalyptus, cassia, gaultheria, peppermint, etc. This, with some variations, holds good according to label to Listerin, Pasteurin, borolyptol, bensolyptus, glycothymolin, euthymol, etc. Sozodont consists mainly of a solution of castile soap and essential oils in diluted alcohol, while sanitol represents the salol-saccharin-alcohol class. To combine the above named drugs in an elegant and palatable pharmaceutical, as well as therapeutical preparation, they must be compounded in definite proportions, which, of course, will determine their germicidal strength.

If we take two typical representatives of this kind, viz., Listerin and Pasteurin, we find, according to the affixed label, that "Listerin is the essential constituent of thyme, eucalyptus, baptisia (wild indigo), gaultheria and mentha arvensis (Japanese peppermint), in combination. Each fluid drachm also contains two grains of refined and purified benzo-boracic acid," (?) and "Pasteurin contains the active antiseptic principles of cassia zelanicum, eucalyptus, gaultheria, menthol combined with boro-glycerid and 0.3 per cent of formaldehyde."

* *The Dental Digest*, 1899, page 230.

By actual experimental tests it is shown that a 10 per cent. solution of Listerin will check the growth of anthrax-bacilli, while Pasteurin will do the same work in a 1 per cent. solution (Crandall). By comparing the formulæ of, and the results obtained with, the two antiseptics, we may conclude that their value is largely due to the presence or absence of formaldehyde. The latter is almost as powerful as bichlorid of mercury, although comparatively harmless, if properly blended and diluted.

From the study of the flora of the human mouth, we know that the dense adhesion of the gelatinous mass of fungi is never removed by simple rinsing of the oral cavity, no matter what mouth wash is employed. Mechanical cleansing, by means of the brush in connection with some dentifrice, is necessary, and even this would not create an absolutely sterile condition for any length of time, as the sterility practically ceases with the removal of the active agent.

Some genial dentist theorized upon the happy thought to compound a dentifrice which contained the potent antiseptic in an alcoholic solution, which would, when used in the proper aqueous dilution, form an emulsion which in turn would deposit the precipitated antiseptic between the interproximal spaces of the teeth, and thus inhibit the growth of bacteria.

Of the modern synthetical chemicals, salol and saccharin are the ones which are mostly used for the purpose. Saccharin is a coal-tar product, derived from toluol or thio-salicylic acid. Slightly soluble in water (1 : 250), but very soluble in alcohol, ether, etc. It is remarkably sweet, and has a strongly anti-bacterial power. Salol, or phenyl-salicylate, is another coal-tar product, formed by the action of salicylic acid upon phenol by means of phosphorous chlorid. It is insoluble in water, but very much so in ether or alcohol. In alkaline solutions it will split up into its compounds, viz., salicylic and carbolic acids. For some time salicylic acid has been much lauded as an ideal dental antiseptic, but soon its deleterious influence upon the enamel of the teeth became so marked that its use in this connection is practically discarded at present. Salol took its place, but it is found to be just as detrimental to the dental organs as its component, salicylic acid.

Nevertheless, some enterprising patent medicine firms have flooded both continents with such a preparation. In Europe a salol-alcohol is known as "odol," while the American maker has

changed its name to "sanitol." "Odol," according to *Pharmaceutical Post*, 1894, is a solution of 3.5 parts of salol in 90 parts of alcohol with the addition of 0.2 parts of saccharin, and some essential oils, mostly peppermint. The salol reaction in odol as well as sanitol, is easily proven by adding a few drops of chlorid of iron solution (1 : 20) to the liquids; a violet tint is instantly produced.

To determine the influence of sanitol upon the teeth, I conducted a series of experiments. The effect was so surprising that I concluded to try some of the other best known dental preparations on the market in the same direction. The tabulated results are appended herewith.

EXPERIMENTS.

The teeth which I used for the purpose were thoroughly cleansed, boiled in water and alcohol, dried, and the apical foramina and the carious defects sealed with paraffin. Each tooth was then exactly weighed up to one-tenth of a grain, immersed in the liquid, accordingly pure or diluted, and kept there for a certain length of time. The teeth were then removed, carefully washed in water and alcohol, dried and again weighed. The difference is expressed in per cent.

First Series.—Teeth immersed in the *undiluted liquids* and kept there undisturbed for *ten days*.

NAME.	REACTION.	WEIGHT.		LOSS IN PER CENT	REMARKS.
		Before.	After.		
		GRAINS	GRAINS		
Euthymol.....	Acid.	38.7	28.4	1.05	
Listerin	Acid.	37.3	37.1	0.54	
Bensolyptus...	Weak alkaline.	39.3	38.7	1.53	
Glycothymolin.	Strongly alkaline.	26.8	27.0	0.75 (gain in weight)	Stained deeply bluish-red.
Sozodont	Weak alkaline.	32.8	32.4	1.22	Stained slight-pink.
Borolyptol.....	Acid.	13.7	13.6	0.73	
Pasteurin	Acid.	32.2	32.1	0.31	
Sanitol	Neutral.	21.6	20.2	6.48	Peculiar appearance, bleached.

Second Series.—Teeth immersed in the *undiluted liquids* and kept there undisturbed for *twenty days*.

NAME.	WEIGHT.		LOSS IN PER CENT.	REMARKS.
	BEFORE.	AFTER.		
	GRAINS.	GRAINS.		
Euthymol	28.2	28.0	0.71	
Listerin..	28.1	27.8	1.07	
Bensolyptus ...	32.1	31.8	0.93	
Glycothymolin.	20.7	19.9	3.87	Stained deeply bluish-red.
Sozodont.....	33.2	33.0	0.60	Stained deeply pink.
Borolyptol.....	34.9	34.7	0.57	
Pasteurin	33.0	32.9	0.30	
Sanitol.....	25.8	21.7	15.89	Looks like bleached.

Third Series.—Teeth immersed in the *diluted liquids* (1 : 20) except *sanitol*, which was 1 : 50, and kept there undisturbed for *twenty days*.

NAME.	WEIGHT.		LOSS IN PER CENT.	REMARKS.
	BEFORE.	AFTER.		
	GRAINS.	GRAINS.		
Euthymol	43.9	43.6	0.68	
Listerin.....	29.7	29.5	0.67	
Bensolyptus...	22.0	21.8	0.91	
Glycothymolin.	27.9	28.1	0.72 (gain in weight)	Stained slightly bluish-red.
Sozodont.....	22.8	22.3	2.19	Stained slightly pink.
Borolyptol.....	20.0	19.8	1.00	
Pasteurin	26.2	26.1	0.38	
Sanitol.....	25.5	24.0	5.88	

AVERAGE LOSS IN PER CENT.

AVERAGE LOSS IN PER CENT.

Euthymol.....	0.81	Glycothymolin.....	3.87
Listerin.....	0.76	(Loss in only one specimen, while two others had an average gain of 0.74 per cent. This gain seems to be due to a deposit of coloring matter in the tubuli of the dentin.)	
Bensolyptus.....	1.12		
Sozodont	1.34		
Borolyptol.....	0.77		
Pasteurin.....	0.33		
Sanitol.....	9.41		

For diluting the liquids we used distilled water. According to repeated trials, the proportions of 1 : 20 seemed to be best tolerated by the oral cavity, and probably correspond in the main with those used by the public in general. Sanitol had to be diluted to at least 1 : 50 parts of water, and still the taste of the oil of peppermint and the salol-saccharin became so irritating to the

mucous lining of the mouth and lips that after some days it had to be discarded. A case illustrating this fact is reported by Dr. Neiser (vide, *Ohio Dental Journal*, 1898, page 515). A little boy about six years of age had a squamous eczema about the mouth for some months. The upper and lower lips and the chin were swollen, causing a very painful itching sensation. All the employed remedies failed, until the boy was advised to omit his daily mouth-wash, "odol." Recovery set in immediately, showing that "odol" was the cause without doubt. The antiseptic value of such a weak solution is, of course, practically nil. Sozodont, it seems to us, contains too much soap for ordinary purposes, and has no disinfectant value, while Listerin, euthymol, bensolyptus and glycothymoline in proper dilutions are too weak if compared with the last two of our list, viz., borolyptol and Pasteurin, the latter being, according to our tables, the least injurious to the teeth.

We must bear in mind, however, that the experiments were conducted in the laboratory, and cannot be supplemented in the oral cavity. Nevertheless, they teach us to be careful in the selection and recommendation of certain mouth specialties, which may not alone be valueless, but may have a direct detrimental influence upon the dental organs.

Items of Interest.

AN EASY METHOD OF REFINING GOLD.

Dr. A. D. Hooker, San Jose, Cal.

Since the introduction of crown and bridge work the busy dentist finds his gold drawer gradually filling up with scraps of gold ranging in quality from eighteen to twenty-four carats fine.

The work of refining gold by any of the ordinary processes is not only difficult for the average dentist, but it takes a great deal of time and skill.

The process of refining, to which we now desire to call attention, is very easy and simple. One which the student or office boy could work out with very little trouble. It is briefly as follows:

Gather up all the old scraps and filings, carefully discarding all stray pieces of platinum which may be mixed with the

gold. Take four parts of sheet copper to one part of gold scraps, melt all together in a crucible, or it may be done with the blow-pipe, with foot blower attachment, using a large piece of charcoal or asbestos cup to melt it. After the two metals have been perfectly melted and thoroughly mixed, cool off and place the mass on an anvil or swaging block, and with a four-pound hammer reduce to a thin sheet. Then run it through the rolling mill until the whole mass is as thin as tissue paper. Boil out in soap and water to remove any oil which may have gathered upon it during the process of rolling. Now cut the sheet or sheets of metal into narrow strips about one-fourth of an inch in width, and place them in an earthen vessel and set outside the office window. Pour into the vessel containing the metal sufficient commercial nitric acid to attack and eat up the copper, which it will do very quickly if everything is working right. After letting it stand a short time to cool, the acid may be carefully poured out so as not to disturb the gold which will be found in the bottom of the bowl or vessel.

At first sight one would almost believe that this black, dirty-looking deposit was worthless, and that the gold had been ruined by the refining process. It is only necessary, however, to carefully wash and rinse with clean water to bring the gold plainly into view.

Gather up fine dust, dry, melt and roll again into any thickness desired.

If every detail of the process has been well done the gold will be pure, twenty-four carats fine, and as soft as lead.

In remelting and rolling clippings and scraps of twenty and twenty-two carat gold, which has been kept free from all other grades, we naturally expect it to work well without any refining, but it does not always do so. It will sometimes crack under the hammer and act in a fractious and unbecoming manner under the roller.

To make this again ductile and pliable it will only be necessary to place it on a piece of charcoal* (first making a cone-shaped depression in it). And with the blow-pipe melt and boil it till very hot, and while it is still boiling throw on to the molten mass a small piece of corrosive sublimate followed by a little saltpetre. This will clean it up and make it again pliable.

Pacific Medico-Dental Gazette.

NITROUS OXID WITH AIR OR WITH OXYGEN.

At a meeting of the New York State Medical Association held in New York, October 26th, 1899, Dr. Thomas L. Bennett, of New York, presented a paper on the administration of the above-named combinations. He stated that the inhalation of nitrous oxid was often followed by headache, dizziness, persistent nausea, or a tendency to yawn for twenty-four hours or more. He had been unable to find on record any disturbance of the heart, lungs, and kidneys, and from his own experience was sure that such results must be extremely rare. The prolonged administration of this agent was difficult, because the stages were exceedingly short and sharply marked. On the other hand, if considerable air was admitted, the patient would not pass quietly into deep narcosis, but would present marked signs of excitement. Hence it was necessary to admit air in small quantities. Deep narcosis was present after about one minute, and if all had been rigidly excluded, there would be also marked asphyxia. Mixtures of nitrous oxid with pure oxygen afforded an ideal combination; and they were best made, in practice, by the use of Hewitt's apparatus. All changes in the proportion of gases must be made gradually, as sudden changes were apt to interfere with the smoothness of the narcosis. This method undoubtedly afforded the safest and best form of nitrous oxid anæsthesia, possessing all of its advantages and none of its disadvantages. It was practically impossible to move the patient after the anæsthesia had been started, without disturbing the narcosis. In a long administration of the mixed gases it was not uncommon to consume five dollars' worth of the gases. The abdomen was apt to remain rigid even when the narcosis was deep, and hence this method was not ordinarily well suited to abdominal operations. The greatest indications for this anæsthesia were to be found: (1) in those in whom ether or chloroform could not be used without special danger; (2) in operations so short as to render the effects of ether or chloroform out of proportion to the results; (3) in patients who had previously suffered extremely from ether or chloroform, and had in consequence a great dread of them. This anæsthetic agent had been found especially serviceable in the following cases: tooth extractions, incisions of abscesses and sinuses or division of strictures, curettings of various kinds, stretching in orthopedic cases, breaking

up adhesions in joints, removal of tonsils, doing major dressings, in the aged and in those presenting lesions of the heart or kidneys.

Dr. Golden said that he was positive that the degree of cyanosis depended almost entirely on the experience and skill of the administrator. The longest period that he had maintained narcosis with gas had been two hours, and with the mixture of gas and oxygen one hour and a half.

Dr. De Lancey Rochester said that in most general hospitals it would be difficult to find a sufficiently experienced administrator on the house staff, and in rural practice it was hard to secure the gases.

Medical Record.

THE BRUNETTE PEOPLES OF EUROPE.

Sergi has given, in *Science Progress*, the results of his study of the brunette races and their migrations to the Mediterranean belt. To his mind the origin of those races is a question of racial rather than linguistic migration. While admitting that Aryan speech among modern and historic peoples throws the burden of proof on anyone who essays to find an origin other than Aryan for those peoples, Sergi makes bold to assume that the race or races with which Aryan speech originated may have been at all times few in numbers, and may further have been long since extinct; and consequently that all the Aryan-speaking races of historic times may have, at one time or another, learned Aryan speech, without acquiring more than a slight tincture of Aryan blood. The ground is thus left open for an examination of the question from a point of view primarily anthropologic, and based in the first place on physical, viz., morphologic, criteria of natural kinship between the races to be examined. A survey of the whole Mediterranean shore line has led him to the conclusion that its earliest recognizable inhabitants and their descendants, who form the great mass of the present population, belong to a single closely connected group of races; that their earlier home is to be looked for in the former fertile interior of northern Africa, and not improbably in or near the upper valley of the Nile; and that the peninsulas of South Europe and Asia Minor have been peopled thence along several distinct routes which mainly follow the course of the pliocene land-bridges, or former

land connections. The "Mediterranean race," thus described, has the following characteristics common to all its branches: The outer complexion is typically brown; brown skin, brown eyes, brown hair, abundant and always more or less wavy. It is thus equally distinct from the blonde white races which bound it on the north, and from the negro races of Africa. Modifications of the brown tint are found in all branches of the race, but are conceived to be due to intermixture either with the earlier aborigines or with subsequent intruders. The body is well-proportioned, the face oval, the nose rather narrow, the orbits wide and set horizontally, the forehead high and nearly vertic, the cheek-bones neither wide nor very high; the face not flattened, but if anything a little prominent in front; the neck long and well-rounded, and the features mobile and expressive. It is, in fact, the familiar brunette type which every one recognizes who has traveled to any extent along the Mediterranean. Determined by certain types of skull, the "Mediterranean race" appears, wherever it is found, as a collocation, more or less uniformly complete, of a number of such related types; and from this it is inferred that the race was already composite in the farthest area of origin to which it can be traced. This center is placed by Sergi in the upper valley of the Nile, on the ground that here, among the Abyssinians, Gallas and Somalis, the characteristic collocations of types are most completely exhibited; the dusky complexion of a large proportion of these races at the present day being discounted, partly by their long-continued exposure to a more tropic climate than any other branch of the race, and partly by the certainty of continuous infusion of a negroid strain from the south.

Popular Science News.

MICROBES IN THE ARCTIC REGIONS.

Recent explorers in both the Arctic and Antarctic regions have brought back interesting information concerning bacterial life in the frigid zones. It has long been known that travelers in the Arctic territory suffer very little from excessive changes of temperature, and are entirely free from colds and coughs which are so frequently observed in the winter in our own latitude. Nordenskiöld is authority for the statement that Spitzbergen in the summer time is the healthiest portion of the earth. Levin made a number of cultures of the air in Spitzbergen and in King

Charlesland. Samples of air were taken on the surface of the glacier, on the coast, on the top of a cliff, as well as on board ship. In each instance at least 1,800 liters (nearly 50 gallons) of air was filtered, indicating an elapsed time during the experiment of four or five hours. In only one instance were bacilli found. In that case the air was taken from the deck of the vessel while it was in harbor, and as only three colonies of bacteria developed, it is at least a question whether a grain of dust from the ship did not get into the gelatin. On the other hand, all samples of water, whether taken from the surface of the sea or at a great depth, or from a glacier or obtained by melting snow or ice, were found to contain bacteria, although in very small numbers. At the surface of the sea Levin found one germ for each 11 c.c. (3 drams) of water—a quantity of germ-life which is absolutely insignificant. The same amount of water taken from the River Seine has been found to contain more than two million bacteria. A curious fact was noticed in that the water taken from the ocean at great depth invariably contained more bacteria than water from the surface, and this in spite of the fact that deep water in the Arctic Ocean is usually below the freezing point. Levin made another series of experiments in order to determine the bacterial condition of the intestinal contents of various animals, white bears, seals, reindeer, eider ducks, penguins, gulls, frigate birds, sea-urchins, sea-anemones shrimps, etc. These experiments showed him that in most of these animals the contents of the intestine are almost entirely sterile. In one white bear and in two seals was found a species of bacteria which resembled the bacillus coli commune. The inferior animals, sea-urchins, sea-anemones, etc., usually contained bacteria.

While scientists have long held that bacteria are not indispensable to digestion it is extremely interesting to receive this proof of their statement direct from the natural world. This fact and the fact of the existence of a whole world of bacterial life at a temperature sometimes $3\frac{1}{2}^{\circ}$ F. below the freezing-point are the most valuable results of Levin's researches, a full report of which will be found in the July number of the *Annales de l'Institut Pasteur*.



THE MODERN BRITISH RECRUIT.

Recently at the United Service Institution, Lieutenant-Colonel C. M. Douglas, V.C., M.D., read a paper on "The Recruit from a Depot Medical Officer's Point of View," and said that "a comparatively small collection of highly trained soldiers formed the nucleus of the British army, round which were aggregated a heterogeneous mixture constituting the 'auxiliary forces.'" Speaking of the recruits who enlisted in the north of England and in Scotland, he said that the great majority were sallow, down-cast, nondescript youths, mostly artisans. Candidates were carefully examined in respect of weight, height, circumference of chest, lungs and heart, head and teeth. A really good set of teeth was rare, except among agricultural recruits. The minimum physical standard was low; weight, 115 pounds; height, five feet three and one-half inches; minimum girth of chest, thirty-three inches; age, eighteen years. This was not a high type of British male. But the short, muscular, well-formed man often made a good soldier, and was more active than the big man. Professor Dudley Sargent, of Harvard University, took the measurements of several thousand American students, aged from sixteen to twenty-six years. This was the average result: Age, twenty-two and one-fourth years; weight, 156 pounds; height, five feet eight and one-half inches; girth of chest, thirty-four and one-half inches minimum, thirty-six and one-half inches maximum; right upper arm, eleven and one-half inches; right forearm, ten and one-fourth inches. Of British recruits the results were on the average: Age, nineteen and one-third years; height, five feet five and two-thirds inches; weight, 126 pounds; girth of chest, thirty-three and one-half inches minimum, thirty-five inches maximum; right upper arm, ten and one-half inches; right forearm, nine and one-half inches. The usual average rejections was a little over a third, but sometimes they amounted to two-thirds, and in one case the army medical officer declined the whole batch of twenty-five or thirty.

It is said the continental recruit was worse than the British. but the comparison was not fair. Compulsory service was a net enclosing all the fishes, big and little; in the British net the meshes were made as large as we dared in order to capture only the best fish and let the others go. Want and hunger were unfortunately the invisible recruiting sergeants of the British army, and the men

were too often black sheep. But the effects of drill and discipline on the degenerates in the ranks was amazing, and on the whole the raw material of the British army was not quite so bad as many pessimists would have us believe. Unfortunately soldiering was a trade looked down upon by the working classes, who disliked discipline and longed for better pay and shorter hours. The army of the past had in it many blackguards, but fewer degenerates; the species was almost unknown then among the ranks. The inference was that there was more of the fighting spirit in the blackguards than in the degenerates, and it was the fighting spirit that was essential.

Medical Record.

VICARIOUS MENSTRUATION FROM THE GUMS.

By W. Geo. Beers.

Since last January I have had a very complicated case of contraction of the superior and inferior teeth to contend with, and during the frequent visits of the patient, aged seventeen, I had opportunity for observing one of the most interesting cases of vicarious menstruation which the limitations of dental practice have ever brought to me. The day after I had taken the impression for models, the patient came by appointment, and I noticed such an effusion of blood, about the gingival margins especially, and the gums generally, that at first I suspected that the blood in the mouth came from the lungs. But upon careful observation there was no mistake about the matter, and the surprise was the greater because the gums were healthy and the teeth free from caries or calculus. A week afterward I inserted the apparatus for expanding the superior arch. It was worn with comfort until the periodical return of the menses, when the margins of the gums—which the plate did not touch—were inflamed, as if by the rough inner edges of a badly-fitting vulcanite plate, and the bleeding reappeared. Upon examination of the apparatus there was no exciting mechanical cause to produce such a result, and I was at a loss for an explanation until I found that the blood was non-coagulable, and that the same symptoms of hysteria were present which I had observed the previous month. I then made it my duty to extend my inquiries, and learned that the condition was regularly present each month, associated with severe migraine, and that the bleeding began and ceased coincidentally with the recurrence and cessation of menstruation. As I write, the ninth observation has been made.

Dominion Dental Journal.

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

BONWILL THE MAN AND THE PRACTITIONER.

All who knew the late Dr. Bonwill and his marked peculiarities of temperament, will recognize in the sketch by Dr. Broomell of an evening passed in his society, which appears in this issue of the BRIEF, a piece of pen portraiture true to the life; showing the man as he was, with all his intense belief in himself and his work, his sensitiveness to criticism, impatience of contradiction and fervid and tireless zeal as a propagandist of his ideas.

No life, however "authentic," of Doctor Samuel Johnson, essayist, poet and lexicographer, can displace from the affections of English-speaking people Boswell's immortal record of Johnson's very self, his form and outward seeming, and the pollysyllabic thunders of his sententious speech; and Dr. Broomell in giving us this bit of Bonwill Boswellized, has rendered to the future biographer a service of more real value than would be pages of mere chronological data or "dry-as-dust" details of matters extraneous to the man. Such revelations of character often make clear the hidden springs of force and action governing the events which it is the purpose of history and biography to record.

Concerning Bonwill the practitioner, the interesting reports, written severally by Dr. Brown and Dr. Talbot for this number of the BRIEF, of a notable clinical demonstration of his methods of practice and their results, are in the highest degree valuable. They show that he was not a mere theorist, but had a mastery of detail in every-day practice which deeply impressed all who had the opportunity to examine the results of his work.

Few practitioners would dare attempt to summon for such a clinic so large a number of patients upon a few hours' notice—or upon any notice. Fewer still would have succeeded in securing them when summoned. Perhaps no greater evidence of the dominating force of his personality could have been given than this. His was an unique individuality, whose memory will long survive in tradition, and whose like we of this generation shall not look upon again.

ABOUT MAXILLARY TRIANGLES.

Those familiar with the life and work of the late Dr. Bonwill are aware that he regarded what he termed his "divination" of the "tripod arrangement of the lower jaw, forming an equilateral triangle," as his most important contribution to dental science. Enthusiastic as he was in regard to the merits of all his inventions, upon this special theme his enthusiasm arose to exaltation. In his latest writing upon the subject, in the September issue of *Items of Interest*, he speaks of it as the "most important of my life works and discoveries, and upon which I am willing to die, feeling assured that it was as pure a revelation and inspiration to me as the laws of motion were to Kepler, and the further continuation of those laws in establishing gravitation by Newton."

All who have made the effort have found it difficult, if not impossible, to follow the chain of reasoning by which he arrived at what he claimed to be demonstrated laws in maxillary and dental development, much less to grasp his meaning in those wider flights of metaphysical symbolism upon which his imagination soared.

As to the modern geometer "the triangle connotes not merely the figure bounded by the sides, but the outside regions of space marked off by the sides produced to infinity," so to Bonwill, the definitely proportioned equilateral triangle which he made the base lines for measurement of the human maxillæ, their teeth, cusps and interdental spaces, became a key to the revelation of nature's inner workings, a miracle of design which turned

him from doubt and agnosticism to a belief in the existence of a Divine Architect, who, not through the slow march of evolutionary development, but in accordance with fixed and immutable designs and in conformity to changeless laws transforms lifeless matter into organism.

Much which he believed and verbally affirmed is only hinted at in his writings; but those who have had with him personal converse upon these themes know that apparently the triangle was to him not only the one basal form in which matter in solution crystallizes into organism, but, as to many ancient cults, was in some sense emblematic of Divinity, and even of the cross which symbolizes the tragedy of Calvary.

Dr. Bonwill was not the first man of talent who has been lured into the shadowy paths of speculative mysticism by the powers of numbers and the proportions of geometric forms; the pyramid, the triangle and the sphere and those "mystical numbers," five and nine and three have all had their cults, to whose initiates, in some occult and esoteric sense, each has seemed an effluence from the Deity.

Geometry has well been termed the "Divine Science," but many have been the worshippers at her shrine who, dazzled by the majestic beauty of her changeless laws, have seen henceforth with distorted vision and wrested those laws to meanings which are meaningless and interpretations which are phantasy.

Apart from the question of triangulation Dr. Bonwill's studies of the human maxillæ and their dental equipment were not only original, but in many particulars of practical value to dental science, as well as to dental art. Of practical value to Dr. Bonwill himself they undoubtedly were, for no man can subject tooth forms to such careful scrutiny and searching analysis without a quickening of his artistic sense and a gain in his constructive ability.

That a full understanding and acceptance of his geometric theories was absolutely essential to success in "prosthodontia,"*

* An excellent word of Dr. Ottolengui's mintage.

Dr. Bonwill no longer claimed, although he urged that "it is well to master them for the culture in their study;" but upon his claim that without his anatomical articulator no artificial denture can be properly constructed he was insistent to the last.

The appliance in question undoubtedly possesses some excellent features, and in his skilled hands became a tool for the accomplishment of results which were, as a rule, satisfactory. True, the interlocking of the broadened planes of contact in the deeply channeled grooves, described and illustrated in Dr. Broomell's paper, modifies the typical occlusal surfaces of molars and pre-molars in a manner which is as radical as it is startling, and which, it would seem, must necessarily restrict that freedom of lateral movement permitted by the nature of the temporo-maxillary articulation in certain temperaments, notably the sanguineous.

As this temperament is obviously better nourished than any of the others, the nutrient results of mobility of masticatory movement would seem to be conclusive evidence that nature has not made a mistake either in that particular or in regard to the relatively shallow grooves and flattened cusps characteristic of the grinding surfaces of teeth associated with a mandible of the sanguineous type.

As a jaw with an articulation closely resembling a ball and socket joint is capable of free movement in many directions, it is evident that by Dr. Bonwill's plan it can be restricted to movement chiefly in two directions, up and down; and experience teaches that patients can and do learn to accommodate themselves to such changed conditions. Restrictions of that kind, however, cannot fail to interfere with the normal play of the masticatory muscles, and to that extent diminish the crushing power which they impart to the milling apparatus of the mouth. Hence whatever might possibly be gained for the incisive function by a more shear-like arrangement of cusps and cutting edges would be lost in the diminished force with which the shears could do their work.

That Dr. Bonwill was highly skilled in prosthodontia there is abundant testimony, and if he was deceived in thinking his success due to an inspired geometric concept, rather than to acquired mechanical skill, he is not the only one who has wrought a good work under analogous conditions of mistake. Seas were sailed, and venturous mariners came safely to the haven where they would be, even when they thought that the stars by which they steered had piloted them across a watery plane, and not the surface of a watery sphere.

Assuming that there is an archetype jaw, and that Dr. Bonwill's "divination" of its basal form is irrefutably true, the fact remains that in dental prosthesis the operator is not always, or usually, dealing with archetypal forms, and that an artificial denture is a mechanism which must be modified in accordance with the shape of the jaws, the character of the tempero-maxillary articulation, the movement of the masticatory muscles and the ever-varying configuration of the face and lips; hence it follows that there can be no application of fixed geometric principles to conditions so varying and requirements so arbitrary and inexact.

"A THING OF THE PAST."

The dental profession will receive with gratification the announcement of the Law Committee of the National Association of Dental Faculties, which appears in this issue of the BRIEF, that the litigation in Wisconsin upon issues which for several years have been the subject of a more or less acrimonious controversy between the associated boards of dental examiners and the associated faculties of dental schools is "a thing of the past."

Readers of the BRIEF have already been made familiar with the causes of the regrettable contention thus amicably terminated, and which it is to be hoped will never again be revived.

The final settlement of an unfortunate dispute leaves clear the pathway for a united and harmonious effort for the advancement of dentistry along educational lines, and there must be no backward step.

The century just ending closes an epoch in educational as well as in national and civic growth. It has been an epoch characterized by youthful vigor, but also by many youthful crudities and imperfections which are no longer tolerable.

In educational affairs especially rawness, laxity and irresponsibility must henceforth give place to trained skill, strict requirement and authoritative rule. To this the National Association of Dental Faculties stands pledged for all the years to come; and that pledge must and will be inviolably fulfilled.

THE WISCONSIN LITIGATION.

FINAL REPORT OF THE LAW COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

To the Editor:

It is well known to the members of the dental profession, especially those interested in dental education, that in April, 1899, the Wisconsin State Board of Dental Examiners refused to register diplomas from the Chicago dental colleges and other schools, as the law provides. The provision of the law is that the board shall at all times issue a license to any regular graduate of any reputable, legally incorporated dental college, without examination, upon the payment of the registration fee. After making inquiry of the Secretary of the Board as to the reason why the diploma of his client was not registered, Attorney Quarles, who had been retained in the case, received the following reply:

"MILWAUKEE, April 15th, 1899.

"*Hon. J. V. Quarles, Milwaukee, Wis.,*

"DEAR SIR:—I am authorized to say from instructions received from a member of the Committee on Colleges of the National Association of Dental Examiners, that if the college you represent accepts all the rules as laid down by the National Association of Dental Examiners, in regular form through that body, that this Board will, upon the receipt of such knowledge, issue licenses to regular graduates of said college.

(Signed)

"*H. W. Carson, Secretary.*"

After receiving the above letter, Dr. P. T. Diamond, a graduate of the Chicago College of Dental Surgery, brought mandamus proceedings to compel the board to accept his diploma. The board moved to quash the proceedings, which motion was denied by the court, in a vigorous decision handed down by Judge Sutherland, of the Superior Court of Milwaukee County,

Wisconsin. Summing up the case, in regard to the standing of the college, the Judge makes use of the following language:

"The reputation in this case shows that among intelligent men, whether members of the dental profession or not, the Chicago College of Dental Surgery must be regarded as a reputable institution. * * * Therefore, without difficulty the court reaches the conclusion that the motion to quash the mandamus proceedings must be denied."

The action of the board was based on the ground that those schools refused to subscribe to a rule passed by the National Association of Dental Examiners, regarding the preliminary educational qualifications of students, the colleges giving as a reason, their unwillingness to accept the interference of the boards in a matter which was outside of their proper function.

The National Association of Dental Examiners, of which the Wisconsin Board was a member, at their meeting at Niagara Falls, in August, 1899, rescinded the rule which was the cause of the controversy, and passed a resolution adopting, in substance, the rule governing preliminary educational qualifications of students, which was adopted in 1898 by the National Association of Dental Faculties, and it was hoped that henceforth the two national bodies would work in concert and harmony. In adopting this resolution, the National Association of Dental Examiners recommended to the various State boards that all the schools belonging to the National Association of Dental Faculties be placed on the recognized list, and that the graduates of those schools be licensed, and that all litigation cease. In all States where difficulties had arisen regarding the registration of diplomas of graduates of schools belonging to the National Association of Dental Faculties, the trouble was at once terminated, and licenses issued, except in the State of Wisconsin. The representative from the Wisconsin Board pledged himself at Niagara Falls to return home and do all in his power to terminate the litigation. The week following the National Association meeting, the Wisconsin Board, with their attorney, met by appointment the representatives of the Chicago College of Dental Surgery and the plaintiff in the case against the board, with his attorney, and after a conference, the representatives of the board informed the representatives of the college that the members of the board had voted unanimously to continue the litigation.

On August 13th, 1899, the following letter was written by Senator J. V. Quarles, attorney for the complainant, to Dr. T. W. Brophy, Dean of the Chicago College of Dental Surgery:

"QUARLES, SPENCE & QUARLES,

"Attorneys and Counsellors,

"The Sentinel Building.

"MILWAUKEE, WIS., August 13th, 1899.

"Dr. T. W. Brophy, 126 State St., Chicago, Ill.,

"DEAR DOCTOR:—As you are aware, a meeting of the State Board of Dental Examiners took place yesterday in this city, for the ostensible purpose of carrying out the recommendation of the National Board so explicitly made at its meeting at Niagara Falls. Nothing could be more plain and explicit than the recommendations of such National Association, which ought to be looked upon as a command by members thereof.

"I have to report, however, that our State Board have assumed to be wiser than the national organization, and have positively declined to follow or respect the mandate of the central body. The State Board refuses to recognize the diplomas of your college and all others similarly situated, and leaves no course open but to continue the litigation. We shall, therefore, unless ordered to the contrary, embrace the first opportunity to crowd the case to a final hearing, and allow the National Board to deal with its recalcitrant members.

"Very respectfully yours,

(Signed)

"Quarles, Spence & Quarles."

Preparations were then made for a vigorous prosecution of the case. The Law Committee of the National Association of Dental Faculties, which was created at the Niagara Falls meeting, in August, 1899, for the purpose of taking charge of this litigation, as well as any other litigation, involving the Association or any college holding membership therein, held a meeting in Chicago, October 14th, 1899, and after Drs. Barrett and Morgan of the committee held a conference with the members of the Wisconsin State Board, the latter agreed to license graduates of the Chicago colleges and all schools belonging to the National Association of Dental Faculties. November 6th the agreement was consummated. November 7th the following letter was received by the Dean of the Chicago College of Dental Surgery:

"QUARLES, SPENCE & QUARLES,

"Attorneys and Counsellors,

"The Sentinel Building.

"MILWAUKEE, November 7th, 1899.

"Dr. T. W. Brophy, Chicago, Ill.,

"DEAR SIR:—After great tribulation, regarding matters of detail, I am glad to report to you that the board has finally de-

cided to conform with the provisions of the Dental Law of Wisconsin, abide by the ruling of the National Association of Dental Examiners, and license Chicago graduates and all other graduates from schools holding membership in the National Association of Dental Faculties; thus admitting that, in their action in refusing to license these graduates from April 11th to November 6th, 1899, they were in the wrong. Everything, consequently, in the Diamond mandamus case has been brought to a satisfactory conclusion.

"The injustice the Wisconsin State Board of Dental Examiners has done your graduates, yourself and the many schools involved, cannot be easily forgotten, but our success in securing all we contended for is an assurance of the justice of our cause.

"Dr. Diamond's license has been issued, on our assurance that he would discontinue the case. The stipulation to withdraw the suit has been signed by both parties; the whole matter is now closed up, and the litigation is a thing of the past.

"Yours truly,

"Quarles, Spence & Quarles.

"A. O. Hunt,

"W. C. Barrett,

"Henry W. Morgan,

"Law Committee of the National Association of Dental Faculties."
November 22d, 1899.

OBITUARY.

Stephen Thomas Beale, M.D., D.D.S.

Dr. Stephen Thomas Beale, the oldest practitioner of dentistry in the city of Philadelphia, and one of the oldest graduates of the Jefferson Medical College, died at his home, Tulpehocken street, Germantown, Tuesday evening, December 12th, in his eighty-sixth year. His death was due to senile debility. He retained all his faculties up to the time of his death.

He was born in Sussex, England, May 23d, 1814, and came with his parents to America in 1831, the family settling in Albany, N. Y. Dr. Beale obtained his early education in England, and also attended the Albany Academy. Later he studied dentistry with Dr. McCallister, of that place.

In 1837 he came to Philadelphia, and attended lectures at the University of Pennsylvania and at Jefferson Medical College, taking up the study of both medicine and dentistry. He matriculated at the Jefferson College with Professor James Bryan as medical preceptor, and Dr. Lee as dental preceptor, and graduated from the college in 1847, receiving the degree of M.D., and

from that time until 1851 he practiced both medicine and dentistry, starting in the latter profession in 1840. The work of both professions, however, being too laborious, he devoted himself wholly to dentistry. At the time of his retirement his dental practice in Philadelphia had covered a period of fifty-two years, and was successful and lucrative.

With the late Dr. Ely Parry and Dr. John DeHaven White, he was known as one of the "Fathers of Dentistry" in Philadelphia, and, with them, was one of the founders of the "Pennsylvania Association of Dental Surgeons," which was the first organized movement in that city for the promotion of scientific dental education. He was the first vice-president at its formation, was several times reelected to that office, took an active part in its affairs, and, with the exception of Dr. Mintzer, was the last survivor of its founders.

Dr. Beale was also instrumental in obtaining a charter for the Philadelphia College of Dental Surgery, and on its formation was asked to fill two of its chairs, but was prevented from doing so by ill-health. This college at its first annual commencement, February 18th, 1853, conferred upon him the honorary degree of Doctor of Dental Surgery. Dr. Beale was a master of his profession, and was specially interested in cases which, in those days, were considered extremely difficult, such as maxillary fractures and cleft palate deformities. In his younger days his laboratory was fully furnished with anvil, furnaces, and all implements and appliances for the making of artificial teeth by the carving process then so generally employed; also for the smelting and refining of the precious metals. For years this laboratory was thrown open to young students, and was well attended.

He was a man of broad views, advanced ideas, bright intellect and great energy; an old school gentleman of courteous manners, kindly heart and domestic tastes; a thorough Latin scholar, a lover of nature and of the fine arts. He contributed both to dental and literary magazines, and published essays as well as many musical compositions. His active brain sought recreation in music, which he thoroughly enjoyed.

From his youth he has been a consistent active member of the Presbyterian Church, and has for the last thirty years been connected with the Second Presbyterian Church of Germantown, Philadelphia.

In early life he married Miss Louise Boggs McCord, who

died twelve years ago. They had a family of seven sons and three daughters, all of whom, with one exception, survive.

Two sons, Dr. Thomas T. Beale, Jr., and Dr. Alonzo P. Beale, deceased, followed their father in the dental profession; also three grandsons.

Benjamin H. Catching, D.D.S.

His many friends and the dental profession at large will learn with great regret of the death of Dr. Catching, of Atlanta, Ga., so well known through his numerous contributions to dental literature. For many years he has suffered from attacks of nervous exhaustion, the result of too ardent a devotion to work in the many spheres of activity in which his energies were expended. No one thought, however, and probably he least of all, that under the strain the end of all labor for him would come so soon. It was early in the morning of November 23d, 1899, just as he was about to leave his home to enter upon the duties of the day, that the stroke came, and within five minutes of the apoplectic seizure all was over. "The silver cord was loosed and the golden bowl broken."

Benjamin Holliday Catching was, at the time of his death, fifty-one years of age. He was born June 28th, 1848, at Georgetown, Miss., of an ancestry distinguished for honorable service in the history of the State, his great-grandfather, Hon. Benjamin Catching, having taken an active part as a delegate in the convention which framed the original State Constitution.

Under the preceptorship of Dr. J. S. Knapp, of New Orleans, La., he began the study of dentistry, and later matriculated in the Baltimore Dental College, from which institution he graduated with distinction, and as valedictorian of his class, in March, 1870.

In the autumn of 1871 he entered upon active practice in Canton, Miss., where he remained until 1881, at which time, attracted by the superior opportunities as a field for practice offered by Atlanta, Ga., which had just entered upon its epoch of almost unprecedented growth and prosperity, he removed to that city, and there remained up to the time of his death.

Although he secured a large practice his predilection for literary pursuits soon led him into the field of journalism. He was the founder, and for eight years the editor of the *Southern Dental Journal*. On retiring from that position he began the publication of *Catching's Compendium of Practical Dentistry*, which furnished

annually during the five consecutive years of its publication a most valuable compilation of all the important contributions to dental art and science made in this and foreign countries. It was by this work that he was best known, and it undoubtedly constituted his most important service to his profession. After the appearance of the fifth volume, 1896, ill health from overwork compelled the discontinuance of its publication; and, with the exception of an occasional contribution to professional journals, he desisted from all literary labor until 1897, when he established the *American Dental Weekly*. But, even with the aid of five collaborators, the labor involved in this publication was so enormous that the task proved beyond his strength, and with the issue of the fifty-second consecutive number the journal was discontinued.

He was ex-President of the Southern Dental Association and a member of the American Dental Association, which two organizations are now merged in the National Dental Association. He was also a member of the Georgia State Dental Faculty, and for four years served as a member of the Georgia State Board of Dental Examiners.

Dr. Catching was deeply religious in his convictions, and an active member of the Methodist Church. He was upright in all the relations of life, a good citizen, a devoted husband, a kind father, a Christian gentleman.

He was married June 15th, 1870, to Miss Mattie Sanders, of Georgetown, Miss., who, with a son and three daughters, survives him.

RESOLUTIONS ON THE DEATH OF DR. BONWILL.

Academy of Stomatology of Philadelphia, Pa.

The committee on resolutions upon the death of Dr. Bonwill beg leave to submit the following:

WHEREAS, W. G. A. Bonwill, D.D.S., a member of the Academy of Stomatology, has been removed by death, it becomes our mournful pleasure to make record of his worth; therefore, be it

Resolved, As the sense of this society that in the death of Dr. Bonwill the academy has lost a distinguished member and the dental profession one of its best known followers.

As a man Dr. Bonwill was genial and affable, though often misunderstood. As a dentist he was skillful and conscientious. As an inventor he had no superior in the dental profession. As

an enthusiastic worker in the field of dental advancement he had few equals.

Entering upon the study of dentistry at an early age, and under pecuniary disadvantages, he worked his way to success and eminence by burning zeal and untiring industry. His temperament was such that he could not be idle, and while others slept he was awake and working out problems which have made his name famous throughout the dental world.

As fellow comrades, marching to the eternal world, we shall miss Dr. Bonwill from our ranks. Let us therefore loiter for a moment on the busy highway of life to hang one garland on his tombstone.

Resolved, That a copy of these resolutions be engrossed upon the records of the academy, and additional copies sent to his family and the dental journals.

Edwin T. Darby, Chairman,
James Truman,
I. N. Broomeil,
Harry B. Hickman, Secretary.

ANNOUNCEMENTS.

KENTUCKY STATE DENTAL ASSOCIATION.

The annual meeting of the Kentucky State Dental Association will be held in the city of Louisville on the 15th, 16th and 17th of May, 1900. We are already assured of the best meeting in the history of the association. Aside from an attractive program, the meeting of the National Confederate Association in Louisville at the same time enables us to procure a one cent per mile railroad rate from over the greater portion of the United States. There will be many other attractions to the dentists who attend; trips to the wonderful Mammoth Cave, and to the bluegrass regions of Kentucky.

Ample accommodations at reasonable rates have already been obtained.

F. I. Gardner, D.D.S., Secretary.

For further information address F. I. Gardner, Secretary, 213 West Chestnut street, Louisville, Ky.

DETROIT DENTAL SOCIETY.

Officers for 1899-1900: Dr. T. J. Collins, President; Dr. G. B. Watkins, Vice-President; Dr. Karl M. Fechheimer, Secretary; Dr. W. Cleland, Treasurer; Dr. A. W. Diack, Dr. G. B. Watkins, Dr. J. L. Young, Board of Censors.

Meetings for 1900: January 5th, Clinic, Dr. F. E. Logan, at 234 Cass avenue.

February 12th, dinner and a social evening.

March 12th, 8.00 P. M., paper, "Necrosis and Diseases of the Antrum," Dr. C. H. Oakman; discussion, Dr. E. C. Moore, Dr. J. L. Young.

April 9th, 8.00 P. M., paper, "The Systematic Treatment of Odontalgia," Dr. J. M. Thompson; discussion, Dr. L. P. Hall, Dr. A. Lowther.

May 14th, 8.00 P. M., paper, "The Value of Experience in Dentistry," Dr. C. R. Bailey; discussion, Dr. J. Cleland, Dr. H. K. Lathrop, Jr.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

At the twenty-fifth annual meeting of the Association, held in Chicago, Ill., the following officers were elected for the coming year: President, Dr. Harold N. Moyer, Chicago, Ill.; First Vice-President, Dr. A. H. Cordier, Kansas City, Mo.; Second Vice-President, Dr. S. P. Collings, Hot Springs, Ark.; Secretary, Dr. Henry E. Tuley, Louisville, Ky.; Treasurer, Dr. Dudley S. Reynolds Louisville, Ky.; Chairman of Committee of Arrangements, Dr. M. H. Fletcher, Asheville, N. C.

APPOINTMENT OF A DENTIST TO THE UNITED STATES NAVAL ACADEMY.

Dr. Richard Grady, of Baltimore, Md., has been recommended by the Board of Naval Academy Examiners for the position of dentist at the Naval Academy, and the appointment has been approved by the superintendent, Admiral McNair. The appointment is the result of a competitive examination, free to all dentists. There were more than 30 applicants, 11 of whom were given an examination, theoretical and physical. The academic

year lasts eight months, and the salary is \$1,600, which is paid by the government, the naval cadet paying only for the gold used in filling operations. Since the Naval Academy was organized in 1845, it has had but two dentists, Dr. Walton, who has resigned, having served from 1856. The appointment is purely civil, and carries with it no rank as an officer in the United States Navy.

Dr. Grady is a graduate in medicine and dentistry. He has served eight years as a member of the State Board of Dental Examiners, of Maryland; was founder and first President of the Baltimore Association of Dental Surgeons, and is co-editor of the *American Journal of Dental Science*.

PATENTS RELATING TO DENTISTRY RECENTLY GRANTED.

638123, Cooling attachment for dental impression trays, Adiel M. Jackson, Milledgeville, Ga.

31825, Design, tool handle, Albert W. Johnston, New York, N. Y.; assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.

637338, Dental handpiece, Thomas L. James, Fairfield, Iowa.

637522, Tooth brush, Francis A. McGinnis, Detroit, Mich.

638197, Dental chair, George T. Higgins, Milwaukee, Wis.

638019, Artificial tooth, Henry D. Justi, Philadelphia, Pa.

637970, Dental saliva-ejector and tongue depressor, John E. Nyman, Oak Park, Ill.

638468, Dental pliers, Henry L. McKellopps, San Francisco, Cal.

638645, Attachment for barbers' or surgical chairs, Willis T. Pinckney, Ludington, Mich.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall Building, Washington, D. C.



Questions and Answers *

Question 69. About what time, by whom and in what form were matrices first used in the operation of filling teeth?

This useful appliance was introduced to the profession by Dr. Louis Jack, of Philadelphia, in an article published in the April number of the *Dental Cosmos*, Vol. XIII, page 169 (1871), entitled "On the Use of Matrices for Proximal Fillings." This article bears evidence of careful thought. The difficulties associated with filling proximal cavities have been thoroughly canvassed by its writer, and a series of ingeniously designed steel molds invented; a method for securing them in position devised; changes in cavity preparation, in filling instruments and the best method of using them so as to secure, with the assistance of these steel molds, the best results with the least expenditure of time and effort, and the least discomfort to the patient are carefully explained. To crown all he gave to them a name—matrices—which like appliances have, ever since the publication of that article, retained. The publication marks the advent of appliances to assist in *placing* and *shaping* proximal fillings. It has been very seldom, indeed, that so thoroughly matured an idea has been presented to the profession. These matrices invented by Dr. Jack did more than supply the missing wall in proximal cavities; they gave to the completed filling a desirable shape, and when skilfully used materially assisted in securing accuracy at that vital point, the cervical border. While it is very probable that before this the expediency of thrusting between adjoining teeth something that would help, crudely, to retain the filling material while it was being introduced has been thought of and used, I do not recall anything noted in dental literature that in the least anticipates Dr. Jack's idea. His matrices, instruments for placing them in position, and the special forms of pluggers he suggests in the article referred to, were advertised in the next number of the *Dental Cosmos*, May, 1871. Dr. Jack's article is well worth a careful reading. Notwithstanding the changes that have taken place

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

during the twenty-one years that have elapsed since it was written, his observations and suggestions are as valuable and practical now as they were then. *William H. Trueman, Philadelphia.*

As far as I am aware, the credit of employing matrices as an aid in filling teeth was devised by me in 1870. The first article on the subject appearing in the *Dental Cosmos*, April, 1871, page 169. Previously to this bent files and pieces of silver bent into circular form had been used to facilitate the starting of fillings. Dr. Dwinelle claimed to have introduced this plan at an early date in his experience, but called attention to only one instance.

The matrices introduced by me were depressed, which enabled the fillings to be contoured. Accompanying the description of the matrix was the method of preparing the cavity and introducing the filling, which was described in several articles. This constitutes the method, a new system of filling distal proximal cavities.

The subject did not attract general attention until over twelve years afterwards, when Dr. Barrett in the editorial pages of the *Independent Practitioner* called attention to the value of this system of filling proximal cavities.

This improvement was effected at the commencement of the transition period in the methods of filling the proximate surfaces.

Within the period from 1871 to 1883 the procedures of filling proximate surfaces underwent gradual change, from spacing to prevent recurrence of caries, to contouring to restore the form of the teeth and to avoid frequent injury of the gum. At present the use of thin matrices, either of plane or depressed surfaces, lend themselves easily by ready adaptation to the production of true contouring. The required preliminary being the forcible separation of the teeth.
Louis Jack, Philadelphia.

Question 70. What is the most frequent location of fractures of the maxilla and what are the most pronounced symptoms of such a condition? Also would it be advisable to attempt to insert a splint after the lapse of several days or weeks?

The most frequent location of fracture of the inferior maxillary bone is below the canine and first bicuspid.

The most prominent symptoms are false point of motion and crepitus.

The splint should be placed in position as soon as possible after the occurrence of the fracture.

Union of fracture will take place as soon as the fractured

ends of the bone are fixed by the splint in proper contiguity. Days or even weeks make no difference.

I would refer your inquirer to my paper on "Fracture of the Inferior Maxilla" in the *Cosmos* of 1898.

Faneuil D. Weisse, New York City.

There is considerable disagreement among surgeons on the particular point regarding fracture. I would say on either side of the cuspid tooth, but much depends on the direction of the force and the character of the violence.

Kingsley, while commenting on fractures of the maxilla, says:

"Erichen thinks it occurs more frequently near the symphysis than at any other point, while Boyer makes the statement that it never occurs there, but at the weakest parts of the bone, *i. e.*, on either side of the symphysis. Garretson regards the weaker part of most inferior maxilla, with an unbroken dental arch, as on the line of the roots of the cuspid teeth, but when teeth have been removed, the weaker part may be at the point of the removal.

Gibson, of Philadelphia, is strongly inclined to the opinion that age has much to do with the location of the fracture, and then, with young people it commonly occurs at the symphysis.

"What are the most pronounced symptoms of such a condition?"

More or less pain, particularly at the seat of the fracture in the effort to open or close the mouth, crepitation, inability to masticate, displacement of fragments with marked irregularity in the line of the teeth.

"Time to be allowed before inserting splint."

The splint or appliance to be used should be inserted for the retention of the fragments in as short time as possible, say, at any time from first to third day after the occurrence of the fracture.

This is done to overcome the undue strain upon the fragments by the powerful muscles of mastication, and thus prevent further displacement and discomfort to the patient, and to bring about the restoration of the parts to their normal position for the process of granulation.

I fully believe in the immediate insertion of the splint, except in case of comminuted fractures where fragments are to be removed. In which case I would advocate making this splint previous to the operation, so as to have it at hand immediately after the operation is completed. It would be unwise to advocate the

immediate insertion of the splint where the patient has persistent vomiting, due to the injuries received at the time of the fracture of the maxilla, or following the administration of an anæsthetic.

"Can union take place in seven or eight days?"

Yes; but the time necessary to reestablish bony union varies with the circumstances of the case. Kingsley speaks of "Smith having a case where the separation was delayed 130 days; Physick, another where nine months were necessary; while DuPuytren met with one of three years' standing before union took place." The most careful treatment sometimes, however, and notwithstanding all that art can do, will result in failure. This seems to have been the result upon one side of the jaw in the celebrated case of Secretary Seward.

Rupert G. Beale, Philadelphia.

Stewart L. McCurdy, A.M., M.D., of Pittsburg, read a paper upon this subject before the Odontological Society of Western Pennsylvania on December 12th. Included in his paper were three cases recent in his practice. The publication of this paper will no doubt add much of value to the present literature upon the subject.

EDITOR.

Question 71. The editor of this department feeling that it would be of general interest and profit to have an expression from different members of the profession in regard to their preferred method in the filling of root-canals, submits the following replies to this question which have been received. The same question will be asked of others in time for insertion of answers in the next number.

"I fill the majority of root-canals either after devitalization or treatment with cones similar to the ordinary gutta-percha canal-points, but made of temporary stopping, previously having moistened the canal with chloroform. In case of future trouble it is easier to get to the apex of the root."

J. T. Lippincott, Philadelphia.

"After closing apical foramen with smallest amount of anti-septic cotton I have for years filled roots with oxychlorid of zinc, with a few strands of silk or cotton to carry cement to place. Have had such satisfactory results that I have not cared to change my method, though there are others, doubtless, just as good."

S. H. Guilford, Philadelphia.

"In answer to your question, would say I use Gilbert's temporary stopping, which I roll in small sharp points, the canal

being wet with aristol and wintergreen for back teeth and carbolic acid for front. It is hard enough, does not deteriorate, is easily worked, and can be easily removed or penetrated if necessary. Have used it many years and see no reason to change."

Howard E. Roberts, Philadelphia.

"I think the preparation of root-canals for filling is of far greater importance than the material with which they are afterwards filled. After a canal has been thoroughly treated and sterilized the filling of it is to me largely a matter of convenience. The larger canals I prefer to fill with gutta-percha. Small attenuated canals I can fill more perfectly with a fine thread of raw cotton saturated with some antiseptic. Pathologic roots I always prefer to fill with cotton, as it affords facility for continued medication; also, easy subsequent removal in case of trouble."

F. D. Gardiner, Philadelphia.

"Oxychlorid of zinc."

J. W. Scott, Philadelphia.

"Apex closed with a paste of one of Ceylon cinnamon and tribrophenol bismuth (xeroform). Oil of cajuput as a solvent for gutta-percha cones. This is my present method of root filling. The quantity of oil of cinnamon is so small that I have had no trouble as yet from discoloration such as we have had from oil of cassia."

J. Carrow Chance, Philadelphia.

"I close the foramen with narrow strips of No. 4 tin foil."

J. D. Peters, Norristown, Pa.

"Sterilized cotton."

W. A. Phreaner, Philadelphia.

"My method of filling root-canals has changed very little in the last fifteen years, about which time I read a paper on 'Compressed Air and Its Uses in Dental Practice.' Believing then, as I do now, and having every evidence to support it, that the preparatory or pre-treatment of dentine and its fibrilous contents is of vital consideration, while the filling the canal itself after extirpation of pulp is of comparatively little matter, and any one of the many materials offered, after the dentine is rendered sterile, is acceptable as a filling material, it acting purely as a mechanical medium to fill the space. My method of manipulation at present is to open up the canals, so as to be freely reached, and in purulent cases to wash thoroughly with the atomizer and tepid water; after which the rubber-dam, as a rule, is applied, and warm or hot air, under pressure of ten to fifteen pounds, is thrown in

until thorough desiccation is produced. If the canals are not easily freed, as found sometimes in putrescent conditions, a solvent, such as sulphuric acid in the aromatic form, which can be freely used, of a strength as high as fifty per cent., carefully to get the canals thoroughly cleaned of their contents. This is done to reach the dentine, the acid is neutralized by magnesia when necessary. The dentine is air-dried to whiteness. This is the key, in my judgment, in anticipating further disturbance, for by removing the water in the basic substance the decomposed fibrils and mephitic matter contained in the dentine held in water becomes neutralized or inoperative. A solution of salol and iodoform, to which I have recently added formalin, in solution in chloroform and alcohol is allowed to saturate the dentine while in a dried condition, forcing it to the apex if possible; one to three dressings of this treatment meeting all cases with exceptions so few as to prove the rule. This formula is not essential, any positive germicide will answer. Freshly devitalized cases through the desiccating process can have contents of dentine rendered sterile by immediate treatment. The canals themselves are filled either with oxyphosphate of zinc, into which is incorporated salol or iodoform rubbed up with oil of cinnamon, or a good alloy, into which at times the latter ingredient may be incorporated; or a combination of these two, oxyphosphate of zinc and alloy, rubbed together, with or without an antiseptic; or gutta-percha and sometimes gold; the selection being generally governed by the operation required upon the tooth crown."

H. C. Register, Philadelphia.

Practical Points.*

Devitalized Deciduous Molars.—Clean the canals as well as possible, sterilize with carbolic acid, and inject full of liquid paraffin (liquified in a hypodermic syringe under hot water).

J. W. Cowan, Dental Cosmos.

Porcelain Inlays, Cutting the Grooves.—I observed Dr. Jenkins at work, and observed that when he cut his grooves he endeavored if possible to get a filling that would be in the shape of a collar-button, the groove being cut around the circumference of the filling, and in antagonism to the undercuts in the tooth.

R. Ottolengui, Items of Interest.

* Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Sensitive Dentin.—When excavating causes great pain I dry the cavities thoroughly, lay in orthoform and close with wax. After one or two days the cavity may be prepared painlessly, or at least with very much lessened sensibility.

Wm. Rotenberger, Therapeutic Progress.

Sensitive Dentin.—Many times when I have not been able to prepare cavities in sensitive teeth I have taken a drop or two of some perfume and put it in the tooth; the odor being diffused would soothe the mind of the patient and I could go on with the work the same as if I had used the cataphoric outfit.

A. W. Harlan, Dental Review.

A Low-priced Crown.—For the last twelve months I have been using platinoid for molar crowns when the patient is not able to pay for gold, in this way restoring to usefulness many teeth that would otherwise be lost. Silver solder answers every purpose and can be flowed into the cusps without danger of burning the crown.

M. N. Nixon, Dental World.

To Photograph an Implement or Instrument so as to Make a Working Copy to Scale.—When the photo is to be taken so place a clearly marked three-foot rule that it will be photographed with the object. No matter what the size of the print or negative it will always be a true scale, enlarging or diminishing in exactly the same proportion as the object photographed. *London Field.*

To Abort a Boil.—Moisten a small portion of camphor with alcohol and rub in a mortar one-fourth as much salol until a transparent fluid is obtained—camphorated salol. Apply on cotton protected from evaporation. In from twenty to twenty-four hours the pain diminishes and the tumor becomes progressively smaller, without the formation of pus.

Dr. Bower, Pacific Medical Dental Gazette.

Crowning Frail Roots.—After thorough cleansing and the removal of as much decayed dentin as is deemed safe, insert a gutta-percha cone at the apex; then heat piece of wire, dip it in wax and press home with the gutta-percha and fill the canal with amalgam. At the next sitting remove the wire, enlarge the opening for the reception of a post and adjust a crown.

N. M. Chitterling, Items of Interest.

Pyorrhea Alveolaris.—I have cured many cases, bad ones, by putting a band around the neck of the tooth, letting it extend well up, cutting it first to the gum line, wherever that might be, cutting down to the gum line as though the gum margin were in proper place, and fitting the band well down under the margin of the gum, in order to change the conditions completely. If you fit the band snug around the root it will get well because the conditions are changed, although no amount of treating can make it well.

W. H. Taggart, Dental Review.

To Remove a Broken Broach from a Root-Canal.—Insert twenty-five per cent. pyrozone on cotton in the canal and leave it for a few days, when the broach will be found much reduced in size and easily removed. *S. L. Walton, Pacific M.D. Gazette.*

Preparation of Canada Balsam for Lining Cavities.—Place the balsam in a porcelain dish and expose to low heat for several hours, so that when cool it will be hard and friable. Place in a small bottle and add chloroform until you have a thin fluid.

A. Ösgood, Dental Cosmos.

Taking the Bite.—I find it much better to take an impression before extracting the teeth, cutting the teeth down to the gum line on the model. By taking the bite before extraction you get a correct closure of the jaws, and have a guide to go by. There is also less liability of soreness and inflammation.

W. H. Weaver, Dental World.

Aseptic Precautions in the Care of the Hypodermic Syringe.—An all-metal hypodermic syringe which can be made aseptic by boiling; a graduate used for no other purpose; clove water for making the solution (this keeps indefinitely), a fresh solution every time. After boiling the needles fold them in cotton saturated in alcohol and oil of cloves. Proper precautions will eliminate most of the dangers.

J. E. Nyman, Dental Review.

Kreasoform.—This is a product of formaldehydic action on creosote. It is antiseptic and disinfectant, and being insoluble in water or the fluids of the mouth its sticky nature makes it valuable as a filling material for saucer-shaped cavities, especially in the teeth of small children. Mixed with oxid of zinc it makes an excellent material for pulp capping.

Report Com. on Mat. Med. N. J. S. Den. Society, Items of Interest.

How Much Will It Cost?—I believe that most of those patients who wish to know beforehand about what it will cost, do so to be sure their finances will allow of their having the work done. Unless I know the party I am always suspicious of those who seem indifferent as to the charge to be made. Very often they do not bother with their part of the deal—that is, to hand over the cash.

I. E. Crane, Dental Century.

Better Than Pepper Plaster.—A topical application to the gums, consisting of ether and alcohol in which are dissolved menthol crystals and a few crystals of cocain, is far more effective than a dozen boxes of "pepper plasters," whether the pain is the result of extracting a tooth or of setting a crown, or a wedge or other pericemental inflammation. Apply on plasters made of rubber on one side and felting cloth on the other, held together with gum cement. Moisten the felt side and apply to the gum, renewing as required.

A. Retter, Dental Cosmos.

Pulp Protection Under Oxyphosphate Fillings.—Line the cavity with Canada balsam and tin foil, pressing the tin foil to place with cotton till a good adaptation is obtained.

W. W. Smith, Dental Cosmos.

To Control Hemorrhage at Apex of Root After Pulp Removal.—Wet a needle of bibulous paper in bichlorid of mercury and insert in canal. This will control hemorrhage every time.

J. Y. Crawford, Alabama Dental Apprentice.

Abscessed Deciduous Teeth.—Clean out the cavity by mechanical means and pack with cotton saturated with oil of cloves; then make pressure by means of unvulcanized rubber, filling the cavity until the oil of cloves comes out of the fistulous opening. Then fill the cavity.

C. N. Johnson, N. D. A., Niagara, 1899.

Alveolar Hemorrhage.—In a case where other well-known methods had failed and the patient was becoming alarmingly weak from loss of blood, sulphuric acid dropped in the socket, after washing the mouth out with warm water, caused the flow to cease within three minutes, and there was no subsequent return.

R. W. Turner, Items of Interest.

A Convenient Steam Sterilizer.—The ordinary dental vulcanizer furnishes a simple and effective sterilizer for small instruments. Place them in a bag tied closely at the top, put in the vulcanizer and run the thermometer up to 230°; shut off the heat and allow the instruments to remain in the steam bath for ten minutes. A small quantity of bicarbonate of soda will prevent rust.

Kasson C. Gibson, Dental Cosmos.

Metal Backings of Porcelain Veneers.—The metal backing nearly always changes the shade of the porcelain. To secure a perfect match in color it is necessary to try the effect of the backing in the mouth. A convenient way of doing this is to flatten a small stick of wax, warm it and on one side of the wax press gold foil, on the other platinum—or tin foil will have the same effect. The pins of the facing can be stuck through this and the facing brought into contact with the backing, and the effect tried in the mouth.

S. H. McAfee, Dental World.

Amalgam Fillings.—1. Isolate by rubber-dam.

2. Remove all decay.

3. Sterilize cavity.

4. Dry thoroughly with alcohol and hot air.

5. Varnish cavity with thin solution of rosin in ether.

6. Carefully remove all varnish from periphery of cavity.

7. Pack amalgam in usual way.

Ether has great penetrating powers especially in the canaliculi of the tooth structure. By using the rosin and ether varnish the canaliculi are reached, and a very intimate relation is established between the tooth and the filling.

Geo. W. Souls, Items of Interest.

Tooth Bleaching.—The brown discoloration following the death of a pulp and the diffusion of hemoglobin into the tubular structure of the dentin may be removed by the prolonged action of etherial pyrozone, followed by strong oxalic acid.

E. C. Kirk, Dental Cosmos.

After-pains of Extraction.—I apply orthoform after every extraction, completely filling the wounds with the pain-allaying antiseptic; even though, as after the extraction of many teeth, the wounds are numerous, this can be done without fear, as orthoform is absolutely non-poisonous.

Wm. Rotenberger, Therapeutic Progress.

Pulp Devitalization in Deciduous Teeth.—I consider it extremely hazardous, dangerous, and unjustifiable to use arsenic for destroying pulp of deciduous teeth. I say this in consequence of an accident that happened to me. I introduced arsenic into the crown of a temporary molar, directing that the child be brought back in six hours. It was not brought back for three days. As a result the child never had the permanent cuspid, bicuspid or first permanent molar. The germs of all these teeth were destroyed in consequence of the infiltration of arsenic destroying the crypts in which they were located. This is doubtless the cause of the non-eruption of many permanent teeth.

A. W. Harlan, Dental Review.

Nirvanin.—A number of extractions were made from persons of varying ages, with invariably satisfactory results after the use of nirvanin. We brushed the gums with a five per cent. solution, or applied tampons saturated to the gums, which produced the dual effect of anæsthesia and antiseptis. The gums were also injected to the periosteum, on both sides, the finger gently pressed on the point of injection to prevent an outflow of the liquid. I prefer to make the solution at the time of using. I have had made tablets of nirvanin, each containing 0.25 grammes, of which I dissolved one or two in ten c. cm. of water for immediate use. No after-effects appear, and no pain. Healing is always normal.

Robert Marcus, Dental Register.

Setting Bands With Gutta-Percha.—Wipe out the band or crown with oil of cajuput and warm both crown and pellet of gutta-percha and press the latter into the band; while still quite warm carry to root, allowing all the moisture to remain in the latter, which permits of easy withdrawal of band. Remove, and with hot, flat burnisher cut off all surplus, removing a portion from the inside if there appears to be too much. Repeat till it will almost go to place. When there is no exuding gutta-percha dry the root with absolute alcohol; make the crown as warm as you can hold it in your fingers; drop oil of cajuput in it and carry to place. By this means you are sure there is no excess or exudation of gutta-percha.

W. H. Taggart, Dental Review.

To Improve the Color of Amalgam.—Dissolve gold foil in the mercury—from one to four sheets of No. 4 foil to one ounce of mercury.

A. O. Osgood, Dental Cosmos.

A Germicidal Dentifrice.—My patients use a dentifrice in which hydronaphthol and oil of cassia are the principal germicides. With patients who use this freely and faithfully the results have often been astonishing. Decay has in many instances been almost entirely arrested.

J. Leon Williams, Items of Interest.

To Correct the Unpleasant Odor and Feeling of Rubber-dam.—Wipe it perfectly clean with a damp napkin or sponge; dry thoroughly; dust with borated talcum powder. Rub it over lightly with the fingers and you have a smooth, slightly-scented satin surface, which will readily pass into the closest spaces without soap or cosmolin.

J. C. Cary, Dental Headlight.

Bleaching of Cataphoresis.—Where a tooth is very black from an old amalgam filling fill the cavity with cotton carrying sulphuric acid—three to five per cent. solution—first filling the root with gutta-percha if well open towards the apex. Apply the negative instead of the positive pole and turn on the current. In a few moments the oxid will have been transferred from the tooth to the cotton.

S. E. Guilbert, Items of Interest.

Removal of Porcelain Crown Set With Gutta-Percha.—When, for any reason, it becomes necessary to remove a crown that has been set with gutta-percha heat the crown, using a miniature alcohol lamp made by passing a cotton string through a medicine dropper, cutting it off even with the tapering end. With a few drops of alcohol you have a flame about the size of a pin's head.

R. Eugene Payne, Items of Interest.

Velum Rubber in Plate Work.—In a case where the mouth was very flat and tender, and in which a plate made in the ordinary way would not "stay up," I made a plate with the entire roof of the mouth of velum rubber, using hard rubber next to the pins and pink rubber for the gums. The piece was vulcanized with tin foil on both sides, as velum rubber cannot be polished. It has been perfectly satisfactory.

M. N. Mixon, Dental World.

Painless Extraction—Clyde Payne's Local Anaesthetic.—

R. Cocain.....	15 gr.
Glycerin.....	5 drachms.
Nitroglycerin.....	$\frac{1}{10}$ gr.
Morp. sulph.....	1 gr.
Atropia sulph.....	1 gr.
Carbolic acid.....	3 drops.
Distilled water to make.....	2 oz.

Glycerin localizes the cocain, holding it in opposition to the parts; nitroglycerin stimulates the heart; the sulphates overcome after-pain; the carbolic acid preserves the solution. The preparation contains one and one-half per cent. cocain.

Southern Dental Journal.

Gutta-Percha in Setting Crowns and Bridges.—I have been using gutta-percha for some time in setting crowns and bridges and I think gutta-percha will add about fifteen years to my life, for now if any accident should happen so that a crown or bridge should need to be removed it is almost as easy as taking out a plate.

A. W. McCandless, Dental Review.

Three Requisites for a Root-Canal Filling—Adaptability, Compatibility, Removability.—A proper combination and manipulation of oxychlorid of zinc cement, low-heat gutta-percha and electrozone will give a filling which fulfils these requisites.

Incorporate with the cement powder one drop of concentrated electrozone and add sufficient of the cement liquid to make a creamy paste. The combination of the cement with the electrozone hastens the elimination of chlorin and other sterilizing gases which permeate the dentin. Pump the paste into the canal and follow with a gutta-percha cone very slightly warmed.

G. W. Knight, Items of Interest.

Miscellany.

Removal of Iodin and Silver Nitrate Stains.—Stains of iodine from skin or clothing are readily removed by the application of the hyposulphite of soda.

Nitrate of silver stains are removed by first painting with iodine, following with an application of ammonia.

International Dental Journal.

Is There a Sense of Taste?—According to some experiments which have been made at the University of Iowa, sensations of taste seem really to be combinations of reports to the brain made by the nerves of sight, smell and touch. For instance, few among a large number of persons upon whom tests were made could distinguish, when their eyes were covered and their noses closed, between weak solutions of tea, coffee and quinin.

Microbes in the Beard.—Dr. Schoull, of Tunis, has discovered that the beard is simply a "happy hunting ground" of bacilli. He has proved it upon the guinea pig, whom he has inoculated with the "material obtained from beards and mustaches," with results distressing to the guinea pig, and alarming to those who had been in more or less contact with the beards and mustaches aforesaid. This is a very disagreeable discovery, and may seriously effect the popularity of a form of facial adornment which has hitherto been regarded as open to no other objection than that it is a nuisance to its wearer when in the act of taking soup. But what are a few shreds of vermicelli compared with a whole army of able-bodied bacilli lying in ambush for their victims, and what is more, ready to make victims of anybody who happens to come within their range?

Sanitarian.

Revocation of the Right to Practice Medicine.—The Supreme Court of Iowa recently rendered a decision declaring that the State Board of Medical Examiners possessed the right to revoke the license of any physician whom it considers incompetent to practice medicine.

Chloroform in India.—It has been found that an apparatus for killing animals with chloroform in England would not work in India, because the high temperature prevented the concentration of the chloroform vapor. That this was the case was proved by the fact that by placing ice in the box the animals were readily killed.

Skulls and Brain Capacity.—Professor Arthur Thompson, in the October number of *Knowledge*, deals with the form of skulls and brain capacity. The average weight of a man's brain is about fifty ounces; that of a woman about forty-five ounces. This difference between the sexes is less marked in savage than in civilized races, and is apparently explained by the fact that in the higher races more attention is paid to the education of the male than the female, and consequently the brain is stimulated to increased growth.

Anchylosis of the Jaw Due to Interstitial Myositis.—Seggel (*Duetsch. Zeit. f. Chir.*, May, 1899) describes a case of anchylosis of the jaw of rather unusual character. The patient was a woman aged forty-eight years, who lost all of the molar teeth on the left side on account of caries. They were pulled out in a rough manner and marked inflammation followed each extraction. Three years after their removal the patient was exposed to a severe wetting and was thoroughly chilled. The left side of the face swelled badly, and this swelling and pain lasted for more than three months. From that time on the cheek never regained its normal size, but grew gradually larger without pain until it was impossible to open the jaw. A diagnosis of sarcoma of the ascending portion of the jaw was made, and an extensive resection of the bone and soft parts, including the whole of the parotid gland, was carried out. Complete facial paralysis of that side resulted. The wound healed well, and in six weeks the patient could open her mouth nearly an inch. The tendency of the jaw to fall to the right side was counteracted by a plate with an inclined surface. Microscopical examination of the excised muscle showed that its fibers were separated by a large amount of cicatricial tissue and the fibers themselves were atrophied. The question of syphilis, after careful consideration, was rejected. The lesions appeared to be due to traumatism at the time of the extraction of the teeth and to the inflammation caused at that time, and after the exposure to the weather. Several similar cases have been reported, although usually anchylosis of the jaw is due to syphilis, or to myositis ossificans progressiva, or rheumatism.

Medical News.

A New Alloy is being used in Paris in the construction of the bodies of automobile vehicles. It has been used by De Dion and Bouton, and has been given the name of Partinium. It is an alloy of aluminum with tungsten, and gives a metal with a specific gravity of 2.89 when cast and 3.09 when rolled. It is said to be stronger than aluminum, and almost as light, while at the same time it is less expensive.

Dentistry in France.—This sign—"Dr. Sylvester, American Dentist"—at the entrance to his office in a French city resulted in the condemnation of the dentist on two indictments: 1, for practicing under a pseudonym, as his name was in reality Sylvester Baumgartner; and 2, for neglecting to append the source of his medical diploma, the court asserting that dentistry being a branch of medicine, the derivation of the title of "Dr." must be stated on the sign to conform to the French law in respect to aliens practicing in France.

Wealth and Health.—

There was a man in our town
Invested all his health,
With madly avaricious aim,
To win the goal of wealth;
And when the same he had attained,
With all his might and main,
He vainly lavished all his wealth
To get his health again.

Collier's Weekly.

Lute for Alcohol Bottles.—The following cement is used by Camerano for sealing specimen jars containing preparations preserved in alcohol in the Zoological Museum at Turin. It is stated that it gives a perfect hermetic seal, which is impervious to alcohol, and will last indefinitely. Caoutchouc, 200; suet, 125, are melted together (caoutchouc in the form of old rubber tubing cut in small pieces may be used); French chalk, 200, is then stirred in. The mixture is allowed to cool and keeps indefinitely. To use it it is warmed and a little taken up on a glass rod or a piece of wood is applied to the parts to be luted.

Petit Mon. Pharm.

The Sterilization of Water by Means of Ozone has now been in operation at Lille for some months, and a Commission, including Drs. Roux and Calmette, has recently issued a report on its efficiency. The ozone was produced electrically and was thoroughly mixed with the water, the amount present varying from 5 to 10 mgms. of ozone per litre of air. The amount of water treated was 35 cubic meters per hour. The conclusions of the commission are very favorable. The apparatus worked well and simply, and brought about a marked sterilization of the water. The untreated water contained over 2,000 organisms per cubic centimeter, after passing through the ozonizer it contained only two or three organisms (*B. subtilis*) per cubic centimeter.

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ORIGINAL COMMUNICATIONS.

THE STATUS OF DENTISTRY VERSUS PERSONAL REPUTATION.*

By Grant Mitchell, D.D.S., Pittsburg, Pa.

Almost since the beginning of dentistry, as a quasi-independent science, there have been clamors in certain quarters for "elevating the dignity of the profession." The recommendations and endeavors, however, to effect this laudable purpose usually fall short, because of a manifest misapprehension as to what constitutes "professional dignity."

Such conditions are apparent, to a greater or less degree, in all professions; especially those in which low standards of preliminary requirement have become established. Furthermore, a profession whose mechanical aspects are prominent, as in dentistry, is at a greater disadvantage than one purely intellectual in character.

The glitter of a professional title, and the evident ease with which it may be obtained—by merely developing a little ability in the manipulative processes, and memorizing enough of the seeming "irrelevant" matter to pass a far too lax examination—attracts persons who do not possess a semblance of qualification; whose lack of cultivation renders them incapable of comprehending the vast scientific side of the profession for which they are unsuited, and to which the operative features are merely incidental. It is such as these who seem in greatest distress in regard to the "dignity of the profession."

It would seem that the self-esteem of these persons so increases upon gaining entrance to the outer chamber, or handicraft

* Read before the Odontological Society of Western Pennsylvania, at Beaver Falls, Pa., September 12th, 1899.

department, of a scientific pursuit, that they become subject to spasms of solicitude for the profession which bestowed on them a title. And their thankfulness for the gift finds easy expression in chattering attempts to "elevate her dignity."

The design, in some instances, may be highly commendable. But the plan for carrying it into execution can be effectual only when directed toward self-improvement. This, however, does not appear to be comprehended in the notions of professional dignity. Rather than thus devote time to educating, developing, cultivating one's self, it seems more in harmony with the eternal unfitness of things to waste it in narrow discussions of shallow ethical questions, and in unscientific, inconsequent caviling over fees.

The dental profession is not thus to be dignified. Neither ethics nor fees have aught to do with the honor and glory of this calling. In its broadest sense, dentistry is one of the most exalted of the learned professions. No other occupies a higher sphere. None requires such a diversity of talents, nor a greater degree of excellence in them, for its successful practice.

The briefest glance at the literature of this profession should suffice to convince the most skeptical that her dignity does not suffer in its present elevation. An inspection of such stupendous works as have come from the hands of Miller, Litch, Bödecker and many others; an insight into the character of her periodical literature, such as the *Cosmos*, the *International*, the *Ohio*, and an array of journals too numerous to mention, is almost overwhelming. It seems impossible not to feel a pitiful lack of power to budge her dignity an iota.

Notwithstanding this, there are those in her own ranks who imagine that ethics and fees are essential parts of this lofty vocation. What wonder that public estimate falls below her desert?

Professions, like men, are judged not by their best productions, but by their very worst. Only a few days ago a bright young woman said she never thought it required a very "smart man" to be a dentist, and cited in evidence some notable examples of uneducated men who, in a business sense, were successful practitioners. Numerous inquiries have elicited the fact that this view expresses, substantially, the popular idea of the dental profession, and the reason for it is painfully obvious.

It is not necessary that the public should have a knowledge

of law, medicine, or theology to comprehend the dignity of those callings. The intellectual character of the men engaged in them suffices. Seldom do persons of undisciplined mind find recognition among them. Whereas in the dental profession the multiplicity of colleges established for revenue and glory; the rivalry among them for large attendance; the disregard of the profession in assuming the responsibilities of the preceptor and adviser has resulted in a low order of requirements in the very beginning, and this not rigidly exacted.

Can there be any wonder that the expression:—"What t'ell's that got to do with gold fillings?"—so common among students when confronted with difficulties in memorizing (not learning) histology, bacteriology, physiology, anatomy, chemistry, or any of the collateral branches, has come to be a byword? Or is it a wonder that these same students, after graduation, fail to impress upon the world that dentistry is more than a mere trade, like the carpenter's, the plumber's, or the machinist's, or that the general public regard it as differing from these only in degree of delicacy, and, even in this inferior as compared with the trade of the manufacturing jeweler?

Even among the students who imagine that gold fillings constitute the dizzy heights of dental possibilities the majority succeed in mastering only the meagre rudiments of their proper introduction, and fail to grasp, in their fullness, as in their refinements, the underlying principles of that department of practice; they do things thus-and-so because the demonstrator told them to! Failing to get at the "reason why," they never come to an understanding of the all too evident fact, that dentistry offers no middle ground upon which to stand; that nothing may be effected which will merely "answer the purpose;" that operations are accomplished perfectly, or they are simply imperfect; and that there cannot exist a "slight" imperfection in any dental operation.

How fortunate for many that structural and hygienic conditions so often defer the "evil day" until a reputation is realized! How equally fortunate that personal reputations are achieved—not through public recognition of fitness to engage in a scientific vocation, but through the ability of individualities to favorably impress themselves upon a credulous public mind. And how unfortunate for the profession that this same public mind is only capable of measuring the profession from the man's station, and not the man from the profession's point of view. Were this

order reversed, dentistry could not be accredited with being a "trade" which "does not require very 'smart' men to engage in it;" and the army of artisans who presume to operate in this field—deficient in education, both general and special—would be rated where they justly belong—with the pettifogging shysters!

Can you imagine such men presenting dentistry in the light of a science? Destitute alike of learning and of industry, of judgment and of skill, the plane they occupy is so far below the level of scientific dentistry that it would require a special dispensation of Providence to raise them high enough to gain a horizontal view of the substratum upon which her professional foundation is laid! Yet they form a remarkable proportion of the practitioners, and contribute to the public notion of things.

Many of those of the "better class," who acquired a fair education before embarking in the profession, instead of progressing and improving, have allowed themselves to fall into careless habits, especially of speech; habits which, so far from impressing the idea of erudition, convey, rather, the notion that "it doesn't require a very smart man to be a dentist."

These are the men who are partially responsible for the impression regarding "professional dentistry" entertained by medical men. I am, of course, fully aware that the same conditions here described are equally operative in the medical profession; with this difference in their favor, the superstition which clings to the curative power of drugs and the altogether over-rated notion of the M.D.'s knowledge thereof held by nearly everybody. I am also cognizant of a suspicion of jealousy concerning the dental specialty, and of the utter, almost hopeless, lack of knowledge pertaining to the simplest functions of dental surgery.

However, there are some just reasons for the contempt in which they hold us, professionally, in the glaring misapplication and mispronunciation of simple technical terms, into which careless habits of speech have led us. At a recent meeting of this society no less than seven errors of this sort were noted in the discussion of a single essay.

Inattention to niceties of speech is too common, as in allusions to alveolar abscesses as "bealed" or "ulcerated teeth;" to devitalized pulps as "dead nerves," or "dead teeth;" to devitalization and extirpation of pulps as "killing the nerves," etc. Such mispronunciations as the "lár-nyx," the "phár-nyx," of

"ple-thór-ia," "ane-mí-a," etc.; or the adoption of the lay designations, such as "eye teeth," "canines" and "wisdom teeth," when the cuspids and third molars are referred to; and, in rarer instances, such ungrammatical expressions as: "skun the skin off" and "skint his knuckle," do not compel admiration for the profession admitting "smart men" of this mold to its apparently successful practice.

Nor is it improved, on the other hand, by indulgence in silly, ultra-professionalisms, like "aurification of carious cavities," when gold fillings are meant; or "dentes sapientiæ," when the third molars are spoken of. Neither are extremes of courtesy, such as invocations to patients to "spit kindly please," impressive of much culture.

Next to the questions of ethics and fees the cruelest tortures the "tradesman-dentist" is called upon to endure, probably, relates to the necessity of educating the public, ostensibly, in things pertaining to the health and care of the teeth. And the suggestions offered are as numerous as they are ridiculous.

Gentlemen of the Odontological Society, for the sake of personal reputation, for the sake of the standing of your profession, educate the public by practical demonstration that dentistry is a science of such importance that a high order of intelligence is essential to the appreciation and accomplishment of its aims; that the teeth in their intimate relation with the other organs of the human body, as is so frequently exhibited in the more pronounced and directly traceable reflex manifestations, are organs worthy of the greatest care and attention; and that only "smart men" can give them this. Then limit the efforts at popular education in dentistry to the only professional, dignified and effective channel—personal intercourse, at your office, beside your chairs.

In the matter of popular special education, it does not appear that the oculist finds it necessary to resort to unusual means in acquainting the public with the importance of caring for the eye. And, by the way, whence comes the evident difference in respectability between this gentleman and the dentist? What is there in the practice of his specialty that requires a thorough knowledge of general medicine? Whereas in the dental specialty D.D.S. seems almost superfluous. His work is very much in the same order as that of the dental surgeon; he is called upon to relieve suffering; to remove foreign substances which irritate

sensitive tissues; to remove diseased and destroyed tissues; and, all in all, his occupation is largely mechanical.

I wonder why dictionaries, like the International, the recognized authority of the United States Supreme Court, define "dentist" as "one whose business it is to clean, extract, or repair natural teeth, and to make and insert artificial ones;" and "oculist" as "one skilled in treating diseases of the eye?" Why "dentistry" is defined as "the art or profession of a dentist;" and "ophthalmology" as "the science which treats of the structure, functions, and diseases of the eye?" It would seem as though the young woman's idea was not far wrong. In the present state of affairs it doesn't "require a very smart man to be a dentist."

The purpose of dental conventions is the investigation and interchange of ideas relating to the prevention, cure or alleviation of diseases of the mouth and associate parts, and the promotion of the science engaging our abilities by an increase in the store of individual knowledge, as well as by a consideration of all collateral questions, arising from time to time, which have a bearing upon the improvement of the profession as a body.

I am not persuaded that discussions of "professional ethics" have ever done more in this line than gratify the vanity of him who had "views" to parade, or an axe to grind, and am of the opinion that if a man be a professional man, he is such from inherent instincts, and not because he "subscribed to the code," Nor am I aware that indorsement of the code has in any case prevented unprincipled persons from becoming quacks and charlatans. On the contrary, I am convinced that in many instances persons have veiled themselves behind the code to do that, of which no honest man would be guilty.

It is the old story of the silk purse and the porcine ear. As well expect rogues and knaves to become honest citizens through lectures on law and morality, or expect blackguards to become gentlemen by acquainting them with the Ten Commandments, as hope that charlatans will be converted by harpings on ethics.

The question of fees I consider one for each person to settle for himself. In no sense is it a subject of more than passing interest to the profession as a body. So long as there exists a diversity of professional attainments and human conditions, there must, in all justice, be a difference in rewards for services. And no man, nor body of men, has a right to meddle. This is a

matter of private business, not of public policy; and each man is the best judge of the value of his own services.

To my apprehension, discussions of these subjects do not conduce to the moral or intellectual development of the profession. There is nothing in them of an elevating nature. The strictest interpretation of the code of ethics cannot improve a man's grammar; nor the rigid exaction of extortionate fees refine his intelligence. And both culture and intelligence are essential characteristics of the truly professional man.

I have already alluded to the manner of educating the public in matters dental. Let us look at this a little closer. I am aware the notion prevails in the public mind that the highest qualification of a competent dentist is his ability to extract teeth deftly and painlessly, and his facility in the artistic restoration of diseased or lost parts. I have full knowledge of the fact that woeeful ignorance exists in reference to hygienic and prophylactic measures; that very many otherwise fastidious people either do not know or are careless of the fact that cleanliness of the mouth is as essential to health as a clean skin. And I quite realize that few, if any, recognize dental caries as a disease, sometimes local, more often an expression or result of constitutional disturbance; or, conversely, that through the intricate nervous connection between the teeth and distant organs many of the apparent disorders which baffle the skill of learned medical men could be avoided by early and intelligent attention to the dental organs.

In view of facts like these there can exist no shadow of doubt as to an urgent need of popular instruction in elemental dentistry. But how may it best be imparted? By "inserting chapters in the text-books on physiology used in the public schools?" The very conditions enumerated above render this inexpedient; and doubly so, since the public for years have been educated by tooth extractors and incompetents to believe in the comparative unimportance of the dental organs; a belief that is strengthened by the fact that vastly more artistic and more useful substitutes can be constructed for the teeth than for any other member of the human body.

To overcome this belief no concerted, intelligent effort seems to have been made. The text-book plan is not feasible. The public has not been educated to a perception of the truth and is not, therefore, ready for an innovation which, once started, might lead to other chapters on "the Eye and Ear," "the Nose and

Throat," "Genito-Urinary," "Gynecology," and other specialties of the healing science, the study of which is subversive of the true purpose of a public school training.

Reasons, in such numbers and of such force as to outweigh all considerations of good accruing, might be given to show that "the judicious resort to pamphlets," or "the columns of the daily press," are impracticable, inadvisable, and positively objectionable. But I should too far overstep the limits of my time by further pursuing the subject. Before concluding, however, I will venture to reiterate, that if the public—the better class—appears to be growing out of the notions and beliefs hitherto entertained, if it is gradually showing a higher appreciation of the dental organs (and it is), the results are due entirely—exclusively—to the properly directed efforts of intelligent practitioners in personal intercourse, at their offices, besides their chairs.

My intelligent friends, you who are bringing about this magnificent result, let your efforts continue until not only is the public mind imbued with a higher and yet higher appreciation of your noble calling, but until your fellow practitioners begin to entertain more than the present vague, uncertain notion that dentistry is other than a "trade;" until he awakens to a full realization of the truth that the "science which treats of the anatomy and physiological functions of the human mouth, and associate parts, and the diseases incident thereto" is one for which the name dentistry is totally inadequate. Let your efforts so extend that dental colleges may eventually be compelled to exact intelligence as the first preliminary requirement instead of a "hundred dollars." And thus a class of students may be embarked in the profession who can comprehend that anatomy, physiology, etc., have all to do with their profession, and that gold fillings are but a means to an end, and never the end itself!

What have these branches to do with "gold fillings?" Let me tell you one simple little story: A student, in one of the few really excellent dental colleges, once went to the clinical professor to obtain an agent used in bleaching the teeth. In order that he might not be guilty of a regrettable error, through ignorance of its properties, he asked the professor if the agent—peroxid of sodium—would affect steel instruments. The reply was: "Does an alkali act upon metals?" The moral of this is too plain to need elucidation. Learn not only chemistry, but all branches of

the science you aim to practice for their practical application and not for the purpose of passing examinations!

My friends, you who have the interest of your profession at heart, let not your efforts abate until you have stimulated your more uncouth brethren to exertions leading to self-education and self-culture. Teach them the necessity of reading good books; that their ideas may grow broader, and their manners become more refined.

Show them that in books, "with the exception of the violently satirical and the violently sentimental specimens, we find the closest imitation of men and manners; and are admitted to examine the very web and texture of society as it really exists, and as we meet with it when we come into the world. That we are brought acquainted with an infinite variety of characters, all a little more amusing, and, for the greater part, more true to general nature than those we meet with in actual life, and have our moral impressions far more frequently called out, and our moral judgments exercised than in the busiest career of existence."

Do these things, or let us abandon the notion that dentistry is other than it seems to be—a mere trade which "does not require very smart men to engage in it."

DISINFECTING AND FILLING ROOT-CANALS.

By H. A. Loomis, D.D.S., New York.

So many filling materials have been employed for filling the root-canals of semi-devitalized teeth, and so many disinfectants suggested for disinfecting them, that the number and variety is enough to confuse the intelligence of almost any dental student.

One professor recommends clean cotton, another gutta-percha; one employs oxychlorid of zinc, others cotton impregnated with iodoform, thymol, chloroform, celluloid, liquid gutta-percha, carbolic acid, zinc-chlorid, or liquid sandarac.

There are advocates of liquid pastes, such as balsam of the desert, iodoform (iodoform-lanolin), carbol-eucalypto zinc, corrosive sublimate, aristol, and a number of others which might be mentioned.

The cements employed embrace formalin, gypsum-formalin, iodoform and pheno-iodoform. Then we find advocates of wood, wax, gold, tin, silk and amalgam.

The number of disinfectants employed range upward from carbolic acid, through a long list of essential oils, to sulphuric acid, and downward through another list, including permanganate of potassium, peroxid of hydrogen, and a combination of potassium and sodium (Schreirer) to the most recent forty per cent. solution of formaldehyde gas.

An article was recently published in the *Dental Digest*,* in which the author speaks of a number of other disinfectants and materials not enumerated among those above mentioned. Dr. Hattasy says: "I have labored in gathering the methods as advocated by the leading dentists of the Continents, and I can assure you the deductions will be of benefit to those who are giving this important branch of operative dentistry their consideration. Many dentists do not give any attention to the new methods which from time to time present themselves in the society meetings, although much must yet be ascertained if we hope to successfully fill and save roots containing favorite fillings. If any are dissatisfied with the results of their work, it will be to their interest to glance over the various materials used by others, as it may suggest some material or method which may become universal. Whatever your success is in this direction, you owe it to your profession to make known the true results in order that some material may be recommended as giving satisfaction."

With these words in mind, I am led to ask, What is the cause of this diversity of opinion concerning the merits of the best root-filling? The great majority of our professors of operative dentistry are practical and scientific men. Many of them possess the title of M.D., with certainly an elementary knowledge of chemistry. And yet we find one recommending clean cotton and another gutta-percha, neither of which possess the necessary qualifications for making a perfect root-filling. And this leads up to the question, What are the proper qualifications for a root-filling?

Dr. Hattasy remarks that the points which a material or method should possess are: "(1) It must perfectly seal the apex of the root; (2) be readily inserted; (3) completely fill the canal; (4) possess attraction for and adhere to the walls of the cavity;

* Translated by Dr. B. J. Cigrand Vierteljahrsschrift, April, 1899, and entitled, "Merits of Root-Filling," by Dr. Ludwig Hattasy, of Budapest.

(5) possess molecular attraction; (6) have antiseptic properties; (7) must be durable; (8) pliable and moldable; (9) easily eliminated from the canal; (10) to neither expand nor contract; (11) must not be escharotic; (12) neither unpleasant in taste or odor; (13) must not discolor the tooth; (14) must be compact." If these requisites are attained we will have, he says, "a material which will be universally employed."

Dr. Weld, the author of the "Chemico-metallic Method," says: "The necessary qualifications are, (1) a smooth material, possessing requisite stiffness to reach the apical foramen; (2) thorough disinfection and a practical sealing of the cavity." This is probably the most concise definition pertaining to the necessary requisites for a perfect root filling that has ever been given to the profession. The points associated with Dr. Weld's method embrace all the good points mentioned by Dr. Hattasy, with the exception that Dr. Weld employs a powerful escharotic, and the material used is not always easily extracted after the filling is inserted.

Let us examine in detail some of the above-mentioned materials, and try to ascertain which possesses the *least merit*, considered from a chemical and mechanical standpoint, and by a process of elimination reduce the number, that we may be better enabled to make a choice of what would appear to be the best. Of course there are probably a number of methods possessing more or less merit, which I have not mentioned. If so, I leave it with the advocates of the same to give them to the profession.

1. Cotton, with or without a disinfectant, has been employed for many years. Cotton is a useful adjunct in a dental office, but it is not a germicide; it will neither prevent nor counteract putrefaction; moreover, it is porous. To pack clean cotton into a root-canal which has previously contained putrid matter, or where the dead matter in the dental tubuli is likely to cause irritation and after trouble, would seem, with our present knowledge of scientific dentistry, to be anything but a scientific operation.

The merit of cotton, then, as a root filler depends to a great extent upon the substance with which it is saturated. In this connection may be mentioned carbolic acid, the essential oils, liquid gutta-percha, oxychlorid of zinc, liquid sandarac, and a dozen and one more things too numerous to mention. The permanency of an operation where cotton is employed would seem to depend, then, upon the strength and efficacy of the dis-

infecting agent employed, the number of applications made, and the length of time given to treatment.

The use of cotton is limited, however, to the large canals; for whether used with or without a disinfectant, it cannot be introduced into the fine canals to any extent. Clean cotton, that is, cotton alone, is the first material which is eliminated as being unfit for a permanent filling.

2. Gutta-percha is better than cotton, for the reason that it is not porous, but gutta-percha is no more of a disinfectant than cotton. Liquid gutta-percha, or gutta-percha and chloroform, is advocated by a few practitioners; and in large cavities, easy of access, this combination would seem to commend itself. Previous disinfection, however, with a stronger disinfectant would appear to be necessary; but even this combination cannot be used satisfactorily in the fine canals. To the elimination of cotton and gutta-percha, when employed alone, we will add for the same reasons, wood, wax, gold foil, gold wire, tin foil, amalgam and balsam of the desert.

3. Oxychlorid and phosphate of zinc have been used with success by some practitioners, either alone or with strings of cotton or silk saturated with the same.

Thus we find that there are a large number of materials employed for filling canals, which are devoid of germicidal properties, but are rendered germicidal to a greater or less degree by impregnation with different solutions, pastes and cements.

This leads up to a variety of chemicals, which are powerful disinfectants but devoid of the physical qualities necessary to properly fill the canals after the cleansing and disinfection has been accomplished. One of these methods is that proposed by Dr. Schreier, of Vienna, and consists in the decomposition of the watery portions of the pulp fibres that may be left in the canals, and the production of sodium and potassium hydrates by introducing into the canals potassium and sodium. There can be no doubt but what such a combination is both cleansing and germicidal.

For the same purpose Dr. Barker recommends the permanganate of potassium and peroxid of hydrogen, claiming that when a small quantity of the powdered permanganate of potassium is introduced into the canals, followed by one or two drops of the peroxid of hydrogen, there is a permanent and healthy change in the character of the remaining decomposed pulp tissue.

With a similar intention Dr. Callahan has recommended a fifty per cent. solution of sulphuric acid. The efficacy of this method is probably due to the affinity which sulphuric acid has for all organic matter.

For quick and thorough disinfection, any one of these three methods is doubtless superior to carbolic acid or any of the essential oils. Admitting this to be the case, and that it is possible to apply these powerful agents in the fine canals, the best filling material to be employed is still left in doubt.

The qualifications which Dr. Hattasy has mentioned, viz.: "readily inserted, completely fill the canals, be compact, durable, non-porous, and have disinfecting properties," we never have had until the "chemico-metallic method" was introduced by Dr. Weld. I have used this method for little more than two years. In two hundred cases I have had only five that required any after-treatment.

In addition to my own experience, I have made many inquiries, and can truthfully say that the practical points about this method, which have been commented upon and summed up for emphasis by a number of practitioners, are the remarkable ease of disinfection, the saving of much precious time, and the perfection of the operation. The method may not be perfect; there may be one or two things connected with it that are undesirable, and it may not be applicable in all cases, but for all practical purposes its superiority over any other one method is self-evident.

ASBESTOS AS AN INVESTMENT.*

By Naaman H. Keyser, D.D.S., Germantown, Pa.

For some time past asbestos has been used, alone or in connection with other ingredients, as an investment, either as a protection to porcelain teeth or to hold work in position during soldering. Both the asbestos powder and the so-called woolly asbestos, have been used with plaster of Paris, to reduce shrinkage; the woolly with the idea that its fibres would assist to hold the plaster together when it shrinks and cracks on exposure to intense heat. The powdered asbestos is added to the plaster in place of sand, to produce a light porous investment. The most

* Read before the Pennsylvania Association of Dental Surgeons, November 14th, 1899.

serious objection to its use is that it retains the moisture long after the plaster has set sufficiently to handle and expose to the heat. Investments that contain plaster are better without asbestos.

When time is no object, very good investments can be made by adding to the plaster such materials as bar-sand, silex, marble-dust, or pumice-stone. To prevent shrinkage, the proportion of all these ingredients should be greater than the plaster. The best results are obtained with materials that control shrinkage, make the investment porous, and yet permit the use of sufficient plaster to hold the investment together after it is heated. Investments that will set quickly without shrinkage have been sought for. Several are now on the market, which permit of being heated up before the moisture is entirely dried out; among these are "Sump" and "Fryite." A mixture having almost the same properties as these can be made by the following formula:

Potter's clay.....	4 parts.
Plaster	3 parts.
Mica.....	1 part.

An investment, which stands a high heat without change of form, has been suggested by R. L. Zellers:

Pulv. soapstone.....	1 part.
Plumbago	3 parts.
Asbestos, grade 3.....	5 parts.
Plaster of Paris	7 parts.
Mix thoroughly and sieve.	

Asbestos, by itself, makes an excellent investment. That known as woolly asbestos, or the powdered, when mixed with water or alcohol, may be quickly molded as required, and the heat can be at once applied. It holds its form thus used, hardening as the heat is applied, and with a little care replaces fully in many operations the plaster investment, with the advantage of cleanliness and saving of time.

In using this investment it is best to first apply the heat slowly, so as not to disarrange the mass by the too rapid expansion of the contained moisture. Small pieces, such as a tooth upon which we desire to solder a backing, and many of the parts of a crown and bridge denture, may be expeditiously invested by binding around them No. 1 carded asbestos with No. 6 iron wire.

The iron wire may be so arranged as to form a handle by which to hold the work (D, Fig. 1). In this way a tooth can be safely soldered over a Bunsen burner or a spirit lamp without the necessity for waiting for the investment to harden or for any previous heating up. If there is not sufficient heat to melt the solder when held in the Bunsen burner, a blow-pipe can be used after the object is thoroughly heated.

In all plate work the teeth thus invested can be individually soldered, and finished before final investment. The investment for holding the teeth to the plate is best made of plaster of Paris and good sharp sand. Wildman's formula is: Sand 5 parts, plaster 4 parts.

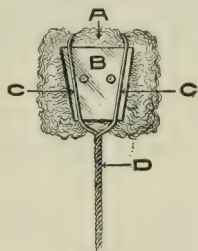


Fig. 1.

- A, Investment. B, Backing on tooth. C, C, Iron binding wire.
D, Prolongation of wire to form a handle of any desired length.

By following out the method above suggested, all the pins can be soldered, and the backings smoothed and finished conveniently and thoroughly, and the final soldering to the plate be very much simplified. The plan also facilitates finishing, and gives the plate a far more perfect appearance, with less labor, than by any other method. By this simple investment gold fillings are easily fused in artificial teeth, all the work being done in the open flame of a Bunsen burner quite as well as with the more expensive furnaces.

A slightly larger concavity is made than described in my article in the *Dental Cosmos*, August, 1895, under the title of "Fusing Gold Fillings in Artificial Teeth." The tooth, after the cavity has been prepared, is wrapped with the carded asbestos, bound with the iron wire to hold it in place and to form a handle (as seen in Fig. 1); care being taken to make the investment as thin as possible and to cover up all the tooth except the concavity made to receive the filling.

The fibres of asbestos form an air space around the porcelain, protecting it from sudden changes of temperature and from direct contact with the flame. Any of the low fusing enamels can be used, Downie's, Timme's, or ground plate glass. The enamel is mixed with water to form a thin, creamy paste, applied to the cavity in the porcelain tooth, and sponge gold is then gently pressed into it. The tooth is then held over the Bunsen burner, heating it gradually at first, and is then placed into the hottest part of the flame. If this does not give sufficient heat to fuse the enamel, the blow-pipe may be used to concentrate it upon the filling. After a little practice we can readily determine when the enamel is fused. It generally requires a degree of heat just a little less than the welting point of gold. After fusion, the gold is condensed, and the filling finished in the usual manner.



ABSTRACTS AND SELECTIONS.

A NEW TREATMENT FOR EMPYEMA OF THE ANTRUM.*

By C. H. Nicholson, D.D.S., Rochester, N. Y.

It is altogether unnecessary and is not my intention to occupy the time of the members of this convention by dwelling on the anatomical features of the region concerned, nor refer to the etiological conditions involved in empyema of the antrum of Highmore, but to come at once to my subject.

The preparation referred to in my title is protargol. I have called it a "new treatment" because while it has been on the market for a couple of years and has been used in general practice as a bactericide, especially in urethral troubles, to some extent in ophthalmic, and latterly in auricular practice, it has not heretofore, as far as I can ascertain, been introduced into the field of odontological therapy.

In addition to its efficacy I am glad to recommend its use for the reason that it permits of a conservative line of treatment and the avoidance in many cases of radical operations, such as entering the antrum through the canine fossa, etc. In the cure of this troublesome disease, which I fear is too frequently passed over unnoticed by the general practitioner, or if it is forced upon his attention, the patient is too often referred to a nose and throat specialist for the cure of a trouble distinctly within the province of the dental surgeon.

Protargol is a silver proteid. A yellowish light powder easily soluble in water, forming a brown liquid, dark according to strength, of neutral reaction, and unaffected by exposure to air, heat, or light. It is somewhat similar to argonon, but differs in that it contains twice as much silver as argonon (eight and three-tenths per cent.) in firm organic combination, and is not precipitated by albuminous or sodium chlorid solutions, has extraordinary penetrating power, and is non-irritating. Solutions of from two to twenty-five per cent. have been used in genito-urinary diseases, and five per cent. for affections of the eyes.

In 1897, I believe, Dr. Benario, of Frankfort, after long bacteriological experimentation, first introduced it in his practice in

* Read before the union meeting of the Seventh and Eighth District Dental Societies of the State of New York, October 24th, 1899.

the treatment of urethritis, due to the presence of gonococci. The result, which exceeded all his expectations, induced him to send the preparation to Professor E. Neisser, of Breslau, who has similar success. Both of these gentlemen reported their experience to the profession, and it soon came into general use in Germany, and later in this country, until it is now considered a specific in such troubles. Dr. Ed. S. Peck, visiting ophthalmic surgeon to the City Hospital, New York, in a paper read before the New York Academy, December, 1898, cites a number of cases of his specialty successfully treated by this remedy.

My attention was called to it by a personal friend, a specialist in nose, ear, and throat troubles, who had read of it being used in the middle ear with success. I immediately obtained a supply and used it in a case of empyema of the antrum I was then treating, which had proved unyielding to the usual methods of treatment, with the most surprisingly satisfactory results. My experience with this case may be best noted in the following report:

A young man, George N., aged twenty-eight years, was brought into my office by a prominent surgeon of one of our leading hospitals, for examination, giving the following history: He had a carious tooth, upper right first molar, which had been troubling him for some time, attended with fullness in the superior maxillary region, serious pain in the orbit with protrusion, frontal headaches, and some alveolar enlargement. Attracted by the glaring advertisement of one of our numerous "Dental Parlors," he called and consulted the proprietor, who attempted the treatment of the tooth for alveolar abscess, which was continued for some days without success, and, the trouble becoming more aggravating, extraction was resorted to and the patient dismissed. Two days later he visited the parlors again, with pus and blood discharging freely from his nose and mouth. The proprietor was much alarmed, and told the young man he was likely to lose the side of his face, and advised him to consult the best doctor he could find. He went to the hospital referred to, was examined, given some medicine, but went back the next day worse than ever; at this call he was seen by the chief surgeon, who at once brought him to my office for examination, as stated above.

I found the alveolar process and floor of the antrum considerably fractured, with some necrosis, the membranous lining badly inflamed and highly painful to the touch of the probe, especially in the orbital region, but a large roomy cavity was presented par-

ticularly free from bony septa, having a free opening into the middle meatus of the nasal cavity. There was a liberal discharge of pus from the nose and alveolus, with a disagreeable odor and other characteristic symptoms. I of course diagnosed empyema of the antrum, and the surgeon kindly turned the case over to me.

Treatment was begun after removal of all necrosed bone, by douching the cavity with six ounces of a two per cent. solution of sodium chlorid, followed with eight ounces of a ten per cent. solution of peroxid of hydrogen and a saturated solution of boric acid twice daily. This was continued for six days, with the result that the discharge was considerably lessened, the odor, headache, etc., had disappeared, and the patient generally more comfortable. These injections were all introduced warm with a Eustachian catheter through the alveolar opening, free vent and drainage being obtained through the right nostril. I might say, in passing, that while all peroxid preparations are reported to be neutral, I found them strongly acid and very irritating to the mucous membrane in its then inflamed condition, especially Marchand's, Oakland a little less so, and McKesson & Robbins's three per cent. pyrozone the least of the three I tried. I found by using pyrozone I could increase the strength of the solution to fifteen and twenty-five per cent., and substituted the boric acid after the sixth day with Gilmore's germicide, which depends on formaldehyde for its antiseptic properties; had the patient call once a day, and directed him to procure a suitable bulb syringe and wash out the cavity with the boric acid solution two or three times daily. This I continued for a period of twelve days with a not very marked change in the character or quantity of the discharge, when I received the information of protargol as above stated.

After securing a supply of it, the cavity was thoroughly washed out with the saline and pyrozone solutions and about two drachms of ten per cent. solution of protargol was injected, letting as much of it as would remain. The patient was directed to call again in five days, and to continue the boric acid injections after forty-eight hours. On his return I was delighted to find a marked change for the better in all the remaining symptoms. The treatment was repeated, and he was directed to call again in a week, when, after the most careful examination, I could find no trace of pus or any symptoms which had been present. I repeated the treatment, however, as a safeguard, reducing the strength of the protargol solution to five per cent., directed the patient to keep

the alveolar opening thoroughly cleansed and allow it to heal, and dismissed the case. After the injection of the ten per cent. solution of protargol, the young man complained of a severe headache which continued several hours; if you will shake the bottle containing the sample presented, you will notice it filled with foam like soap-bubbles, and I am of the opinion that the distress experienced was due to the pressure caused by this rather than to any irritation from the drug itself; still, perhaps, a five or seven per cent. strength would answer as well.

I regret that my experience with this preparation has not covered sufficient time before the date of the convention of these societies to confirm the above satisfactory results with the citation of other cases, but if it will cure one obstinate case in two treatments it will doubtless prove of great advantage at least in all similar cases, and I recommend it to your consideration. I am also of the opinion that it will be found extremely valuable in alveolar abscess, and, although I have several cases under treatment, I am not at present prepared to report definite results along this line.

I can at least remove one objection to its use which at once occurred to me, that is discoloration of dentin. I have saturated pulp-chamber and canals of recent teeth with a ten per cent. solution, but find no discoloration, such as follows the use of silver nitrate.

Dr. Benario, in the published report of his experiments to ascertain the bactericidal power of protargol, states that fresh cultures of staphylococcus pyogenes were killed by a two per cent. solution in twenty minutes, and those of the sixth generation were killed in fifteen minutes by a 0.5 per cent. solution, and the action was more rapid in bouillon and serum than in sterilized water. So that I have strong hope that protargol will be found a most effective remedy in alveolar abscess and many other branches of our field of operations.

Dental Cosmos.



ENAMEL FILLINGS FOR TEETH.

"When the article of which the following is an abstract was read before the Society for the Advancement of Oral Science, June, 1880, I supposed that the use of enamel filling was original, and the article was consequently sent to one of the journals. Since then several dentists have told me they had used pieces of porcelain for filling 'twenty years ago.' I am convinced there must have been some imperfections in the methods they used, as I am not aware of any one even now who regularly employs this way of filling teeth, and think it may be well to again attempt to make the method public, particularly as the experience of several years has convinced me that many conspicuous cavities can be more satisfactorily filled in this than in any other way. Early experiments were made with walrus ivory, and afterward with celluloid. The former succeeded, the latter failed. The next method tried was one which in some of its modifications is now used.

"Carefully cut the cavity with perpendicular walls. When perfectly dry cover with a thin layer of some petroleum fat. Roll up Godiva modeling composition into sticks about two inches long and one-quarter of an inch in diameter. Hold the end of one of these sticks over the gas flame, then press into the cavity as far as possible. The cold part of the stick acts as a piston and gives a good impression. Attach a copper wire to the stick, dip for a moment into ether, then into powdered black lead, and brush to remove the excess. Make an electrotpe from it. The thickness of the copper deposit should vary according to the subsequent treatment of the mold.

"First method: Make the copper one-sixteenth of an inch thick. Clean the surface and drill a hole through the mold. Cover the face of the mold with a layer of No. 30 gold-foil. Then make an enamel as follows:

R. Oxid of lead.....	800 parts.
Silica.....	400 "
Carbonate of potash.....	100 "
Cryolite.....	500 "

"These should be finely divided, intimately mixed, melted in a covered white crucible, poured into cold water, dried, ground fine, and marked Enamel Base. Many bases have been tried, but this is now used. To color the enamel base: for gray, blue, plat-

inum; for yellow, silver chlorid of silver, oxid of uranium, silver and gold, oxid or cerium, oxid of cerium of gold, glass of antimony either alone or mixed with gold. For blue, cobalt or oxid of silver.

"Other colors have been tried, but these give good results with the enamel base mentioned. The amount of color must be found by experiment, each new sample differing in power.

Examples, gray-blue enamel:—

Enamel base, 100 grammes; platinum, 50 milligrammes.

Yellow enamel, No. 1.

Enamel base, 100 grammes, uranium oxid, 40 milligrammes,

Yellow enamel, No. 2.

Enamel base, 100 grammes; cerium oxid, 500 milligrammes; gold, a variable quantity; kaolin, 1 gramme.

"These materials should be finely divided, intimately mixed, and fritted on platinum in a muffle. Colored enamels may be made less transparent by increasing the cryolite, by cooling slowly, or by adding an opoque body. Cryolite can be increased to advantage with those pigments only which give the required colors in the metallic state.

"To mold the enamel: Put a piece on the prepared mold and lay them in a heated muffle. With a platinum instrument press the enamel into the cavity. Immediately remove from the muffle, placing upon cold metal; when cold push out the enamel by means of the hole in the back; put the enamel in aqua regia; wash and dry.

"Second method: Deposit copper in a thin layer and back it up as in an electrotpe. Clean the mold and drill a hole through the back. Pack tooth body of a suitable color into the mold. Dry and push out of the mold by means of the hole in the back. Biscuit, and when cool replace in mold, trim and enamel, then bake. For small cavities the shrinkage is not injurious. For larger cavities one of several ways may be used. First way: Grind a piece of body to a size smaller than the cavity. Place soft tooth body in the mold and press the piece of fused body into it. Dry, biscuit, etc., as before. Second way: Pack soft body into the mold, dry it and bake; then use this piece instead of grinding as just described. If a cavity is circular and quite small, the most rapid way is to grind a piece of fused body to fit the mold.

"By whatever method the enamel is prepared, success in fill-

ing depends upon the way by which the enamel is fastened into the tooth. I have found no durable cement, but a modification of the preparation called Hill's stopping seems to answer the purpose.

- R. Pure gutta percha 1 part.
 While oxid of zinc..... 4 parts.
 Oxid of titanium,
 Oxid of uranium, 3.....āā a minute quantity.

Mix.

"To properly imbed the enamel in this preparation in filling it is necessary to use an instrument giving out a constant amount of heat, as otherwise one of two things will happen; either the enamel will be fractured by the changes of temperature or it will not be properly imbedded, because heat enough has not been used to soften the composition. I have devised several instruments, and two of them having been found simple will be described at the end of this paper.

"Given such an instrument, begin the filling by driving the cavity with absolute alcohol, then soak it in creosote, dry the cavity again and varnish with a solution of copal in ether. Smear the surfaces of enamel and cavity with the oxid of zinc composition already given, place the enamel in position, and imbed it with either of the instruments to be described. After removing the superfluous material the operation is completed.

"Instruments: The first is a copper wire one-eighth of an inch in diameter and eight inches long. One end is expanded into the shape of the bowl of a teaspoon, the other is formed into a socket for holding instruments made of copper. Between these ends the wire is wrapped in asbestos and inclosed in a hard rubber handle, to one end of which is attached a small gasburner so placed that when lighted the flame shall impinge on the concave side of the spoon-shaped end of the copper wire. The gasburner is connected with the gas supply by a small rubber tube six feet long.

"The other instrument is a pair of pincers. To the inside of one of the jaws is attached a soft rubber pad. The other jaw is perforated for holding an instrument like the first one, only on a smaller scale. The soft rubber pad is placed against the tooth, the warm instrument in the other jaw is then pressed against the enamel, and the jaws brought together by pressure on the handles."

Items of Interest.

REPLACING OF PORCELAIN FACINGS.

The breaking of porcelains in bridges that are set is one of the things we have to contend with, and the repairing of porcelain is something which, if I had time, I should like to talk about. I have constructed an instrument for dilating a tube. A pin on the teeth may be elongated. It is often the case pins are not long enough, and even the longest pins are frequently found to be a little short and give us a good deal of trouble. Anyone who makes bridge work for a number of years will find he is annoyed by having porcelains come off, and to replace porcelains successfully is quite an important thing. To elongate these pins, take a tube of platinum with a pure gold upon the inside. In your own laboratory you can make the platinum and gold yourself. Take a piece of platinum, we will say No. 28, and pure gold 30, and preferably in size about that wide (indicating about an inch, or a little more); put the two pieces under the blow-pipe and make perfectly clean, or you might immerse in alcohol, then lay the platinum on the gold, having set the rollers so that 28 will just come through the rollers easily; then grasping the gold and platinum with tweezers, hold it over a Bunsen burner until it is a white heat, and pass quickly through the rollers. It is simply annealing; but if conditions are right passing through the rollers, you will get perfect welding, perfect interlocking of the crystals of gold and the platinum, and you will get a piece of platinous gold in that way. Cut off a strip and you can very readily make a tube to fit the pin. Then with a blow-pipe and a tiny piece of pure gold, unite the ends. Having placed the two tubes on the pins, invest and put under the blow-pipe, after heating gradually, and the pure gold will unite on the inside with the platinum pin, and you will have two elongated tube pins. You drill your holes through the bridge to accommodate these pins and then upon the under side countersink it, and the tubes passing through may be ground off even with the general surface. I have constructed a tube dilator. It has a sole leather pad (on one side for contact with the facing), which may be made plastic by soaking it in water, or it can be covered with rubber, and there is no danger if properly handled. Placing the dilating punch-like end into the tube, it can be dilated so as to fill the countersink portion of the gold. A small-headed gold pin may then be made and cemented in, if it is thought best; or the space may be filled in with gold foil. In that way it seems to me a bridge may be repaired easier than in most other ways.

G. W. Melotte, Dom. Journal.

THE ADULTERATION OF FOODS.

This practice has become a public disgrace and danger, and stringent laws against the crime, coupled with an energetic execution of them, are demanded in every State of the country. The recent testimony before the Senate committee in Wisconsin has so deeply aroused the country that in order to secure an accurate and authoritative report, we asked Professor A. S. Mitchell to epitomize his testimony for us. This he has kindly done, and we reproduce it herewith:

"My testimony before the Senate Committee on Food Adulteration was in substance as follows:

"That as chemist of the Wisconsin Dairy and Food Company for the past four years, I had been engaged in investigating the character of the foods on the market. That before the passage of a State food law extensive adulteration of spices, syrups, honey, flavoring extracts and baking-powder was being practiced. That special previous laws had done much to control similar adulteration in vinegar and dairy products.

"That adulteration might be discussed under two general heads. The adulterants may be simply fraudulent, or they may be injurious or deleterious; the injurious substances generally being used simply for coloring, or for masking fraudulent sophistication, or as chemical preservatives. That in my opinion the rapidly increasing use of preservatives was a menace to public health and should be regulated.

"That in former days foods were preserved by aid of sugar, vinegar, and salt, all of which are proper constituents of food, or were kept by boiling, or the use of ice. That at present chemicals were not only purchased under their own names for use in foods, but that antiseptics were placed upon the market under fanciful titles and accompanied by false and misleading statements of their properties.

"Quart packages of 'Freezine' and 'Special M Preservative' were shown the committee, with the false statements on the label of the former, stating that it acts the same as ice, and that as it is a gas it escapes and leaves nothing in the milk, and that it cannot be detected by the chemist. The substances were stated to consist wholly of solutions of formic aldehyd. Its properties and uses were then described. I stated that other similar preservatives were on the market, and were much used by milkmen,

especially in warm weather, and by those shipping milk by rail to the large cities. I gave it as my opinion that it did not 'act like ice,' that it was a powerful antiseptic, and deleterious in any amounts, and that its use was highly objectionable; that if cleanliness was exercised in the care of milk and it was properly aerated and cooled, its use was not necessary. 'Cream Albumenoid,' consisting of gelatin, boric acid, and borax, was shown as sold for use in 'improving' cream. 'Laketone,' a solution consisting of sulfonated anilin yellow, used for coloring milk and cream, was produced and discussed.

"The very common use of salicylic acid for preserving cider was referred to. (I have found grape juice of a standard make and recommended for the use of invalids with weak stomachs, to and heavily salicylated.)

"The use of salicylic acid in bottled beer was referred to.

"I stated that in my opinion a desirable policy would be to prohibit the use of all deleterious substances in all amounts except in such cases as the substances were necessary ingredients in the manufacture of the product. For example, where there is a choice of yellows for butter-colors, flavoring extracts and confectionery, harmless vegetable colors must be used in preference to the brighter and more penetrating coal-tar colors.

"I then showed preparations of sodium sulphite intended for use in chopped meat and hamburger steak. 'Rosaline,' a colored mixture of borax, niter and salt, sold for use as a sausage color and preservative, was shown.

"After a somewhat lengthy discussion of jellies, syrups, baking-powders and various food products, I strongly recommended national food legislation and the establishment of a National Food Commission.

"Such a commission would not only prevent the sale of injurious and deceptive goods, but it and the national law would serve as a model for State legislation, tending to uniformity in the various States. As it is at present, while the State officers can reach and control the manufacture of food products within the State, they cannot reach dishonest manufacturers shipping goods in from the neighboring States, but are forced to hold the retailers responsible."

Phila. Med. Jour.

THE PATHOGENESIS OF DIABETES.*

By Henry W. Berg, M.D.

The sugars and starches included in the group of carbohydrates of the food may, for the purpose of this paper, be represented as undergoing digestion in the alimentary canal, in which under the influence of certain ferments derived chiefly from the salivary glands, pancreas, and intestinal glands, they are changed to glucose, an easily diffusible form of sugar. In this form they are taken up by the portal circulation, and pass to the liver, in which they are stored up in the form of glycogen. So great is the storing capacity of the liver for this material that it sometimes represents as much as fourteen per cent. of the weight of the organ.

From the glycogen thus stored up, the liver again converts to glucose a quantity sufficient to supply a fixed percentage of glucose to the venous blood passing from it. Thus glucose enters the circulation in what is practically a fixed percentage, varying from 0.05 to 0.15 per cent. in man. Some of this grape sugar in the blood is again converted into glycogen in the muscles and stored in them, for use in the production of energy. By far the larger proportion, however, is, according to Sepine, destroyed by a glycolytic ferment formed in the pancreas. When this later organ is extirpated or at least removed to the extent of ninety per cent. of the organ, or so diseased that the ferment is not produced, the grape sugar in the blood is not destroyed, accumulates in excess, and is excreted by the kidneys. Thus glycosuria results.

Diabetes mellitus, then—I do not here include the temporary glycosuria which follows the eating of carbohydrates in excess—may be due to disease or interference with the saccharine functions of the liver, or disease or interference with the glycolytic action of the pancreas. Furthermore, the famous experiments of Claud Bernard showed that in animals puncture of the apex of the calamus scriptorius in the floor of the fourth ventricle caused glycosuria, lasting many hours. When the animal was killed, after the glycosuria had ceased, it was found that the liver was free from glycogen. In other words, the puncture of the medulla at the above-mentioned point had caused the liver to yield up all of

* Excerpt from paper read before the Academy of Medicine, Nov. 21st, 1899.

its store of glycogen to the circulation in the shape of glucose, which had been excreted by the kidneys, as grape sugar in the urine. Many other lesions of the nerves, ganglia, and nerve centres produce a similar effect, although not with anything like the constancy with which the lesion of the medulla causes it. Thus this effect was found to follow destruction of the upper and lower sympathetic cervical ganglia, the first thoracic ganglion, and the abdominal ganglia of the sympathetic. Here then we have three possible varieties of glycosuria.

1. The glycosuria resulting from disturbance of the function of the liver.

2. The glycosuria resulting from disturbance of the function of the pancreas.

3. The glycosuria due to puncture of the medulla resulting in the yielding up by the liver of the store of glycogen, with a probable simultaneous stoppage in the secretion of, or at least no corresponding increase in, the secretion of the glycolytic ferment in the pancreas.

HOW TO RESTORE ANIMATION IN ETHERIZED SUBJECTS.

A case of death which occurred when the patient was under, or had taken, ether, recently reported in the *Brisbane Telegraph*, offers, if the report is correct, food for much thought and for some comment. We cannot vouch for the accuracy of the accounts of the proceedings, and we simply give them as they reached us. If the facts are misrepresented, our strictures may be unnecessary, and, indeed, we hope that such is the case. The scene of the occurrence was a dentist's room. The patient, a somewhat stout maiden lady, aged fifty years, required 13 or 14 teeth extracted. The patient had requested a qualified medical woman to give her ether. The evidence of the dentist is that the patient did not take the ether well, symptoms causing anxiety making their appearance early. The administrator states that the patient complained that she was choking. The sequence of events is now somewhat obscure. The administrator states that, owing to the unsatisfactory way in which the ether was taken, she gave a few whiffs of chloroform, which relieved the

urgency of the symptoms. She then resumed giving the ether. The dentist, on the other hand, ignores the chloroform given, it would seem, to a fat patient sitting in a chair, but says the patient's state was so unsatisfactory that the administrator removed the mask and *turned round to fill a syringe with ether to inject it.* The italics are ours. He suggested extracting two or three teeth *to rouse the nervous system.* He did extract the teeth, but, unhappily, the nervous system failed to respond, as might be supposed, to the stimulus of the forceps. Ether was subcutaneously injected, and nitrite of amyl was used. The head was lowered, but it appeared almost as if the subcutaneous syringe replaced the all-essential inversion and prompt performance of artificial respiration. We hope the account as we read it is inaccurate, for it is a fatal error to lose valuable time at such critical moments. In the first place, the patient should, as soon as symptoms of an unsatisfactory nature showed themselves, have been inverted, no chloroform should have been given in the sitting posture, and the further administration of ether, if attempted at all, should only have been done while the patient was reclining. The extraction of teeth in a patient who is on the verge of syncope or in semi-anæsthesia is a step which no experienced or cautious man would consider for a moment, much less practice. The hypodermic injection of ether is not a remedy at all likely to help in such a case. The patient was very nervous, and it is possible that she died from fright caused by the suffocating feeling she complained of, or from the shock of the teeth being drawn while she was imperfectly anæsthetized, or, indeed, the syncope may have had no direct connection with the anæsthetic. Still, as the matter appears in the reported evidence of the magisterial inquiry, an unpleasant feeling is left upon the mind that the patient would have had a better chance had other measures been resorted to and with greater promptness. We are not informed how the ether was given. If a cone was used, it is probable that the feeling of suffocation was no figure of speech, and that the enforced holding of the breath from spasms of the air-passage played no inconsiderable part in producing the fatal issue. Ether improperly given may prove as perilous to nervous and stout subjects as is chloroform. The case is further of interest and importance as death in this sudden way is almost unknown under ether except when due to an overpowering vapor causing spasmodic closure of the glottis.

Lancet.

DESTRUCTION OF TEETH IN CHEMICAL ESTABLISHMENTS.

Of the different factories in which the teeth of the employés are more or less affected we find the following about those engaged in the manufacture of sulphuric acid. From the report of a commission of investigation which recently met in England we take the following: In the manufacture of sulphuric acid pyrite is the principal raw material. The powdered pyrite is roasted in specially constructed ovens, and the sulphurous acid which is formed is conducted into the so-called glover tower. In the refilling of the ovens and the consequent opening of its doors the sulphurous acid escapes and fills the rooms of the factory, and from these fumes the employés suffer greatly. Sulphurous acid has a depressing effect on the muscles of the heart, while on the respiratory organs it is sometimes excitable, and again depressing; stronger inhalations produce a feeling of suffocation. The workmen guard against this by means of a muzzle of moistened flannel folded several times, which they hold between their teeth. They prefer this to respirators. The sulphurous acid that condenses on the muzzle held between the teeth will in time attack and impair them. The majority lose their teeth in a very short time. One workman who was employed for three years in St. Helens, and, previously, four years in Widness, has lost all his teeth; he was then only 22½ years of age, having entered the factory when 15½ years old. Also in the manufacture of sodii sulphas (Glauber's salt), which is made by the action of sulphuric acid on heated salt, the workmen principally suffer from the fumes of hydrochloric acid, and they also guard themselves by holding muzzles of moistened flannel between their teeth. In these the gaseous hydrochloric acid condenses and attacks the teeth. The commission reported on this as follows: The inhaled hydrochloric acid fumes have a suffocating and irritating effect on the respiratory organs, cause coughing, followed by a kind of bronchitis; especially does it affect the teeth, giving them a dull feeling, and finally destroys them. Many of these workmen, too, have lost all their teeth from this cause.

Journal fur Zahnheilkunde (Dominion Dental Journal).

MICROÖRGANISMS OF THE MOUTH OF THE NEW-BORN.

Giuseppe Campo (*Pediatrics*, Naples, vii., 229, August, 1899) has carried out a series of researches on the microörganisms of the mouth of the newborn in order to ascertain (1) if the mouth at the moment of birth is free from germs; (2) the development of germs along with the establishment of the primary functions of life, and (3) the isolation of them and their pathogenic action. Reference is made to the work of Vignal, Biondi, Sanarelli, Freund and Kreibohm, and the methods used are described. The contents of the mouth were taken at the moment of birth (the head of the infant being still on the perineum), four hours later, when respiration had been going on, and twenty-four hours later, when lactation had been commenced. Ten infants were examined at these three times, and twenty-one others were examined at one or other of the times named. Campo concludes that the mouth is sterile at the time of birth, for out of twenty-one cases in which the buccal contents were examined at the moment of birth, in six no germs were found; the fifteen cases in which organisms were found do not, in his opinion, invalidate the conclusion, for in some of these the contents were collected by the midwife in attendance, and in others it may be that germs gained entrance from the maternal vagina during labor. The effect of respiration was that the mouth collects a number of various microörganisms, which multiply with great rapidity; they were the bacillus mesentericus vulgatus, the bacterium termo and the bacillus ulna. The first effect of lactation was found to be a diminution in the number of germs, possibly due to the mother's milk washing them downward into the gastro-intestinal tract; but its second effect seemed to be to increase the number of the kinds of germs met with. This effect Campo thinks is the result not of new varieties being introduced in the milk, for the milk direct from the breast is sterile, but of a power conferred by the milk upon the buccal contents of growing new kinds of germs. The organisms found were, in order of frequency, the bacillus mesentericus vulgatus, the bacterium termo, the bacillus ulna, subtilis, leptathrix, and lineola (?), and three non-identified germs, to which the names of bacillus *x* and coccus *y* and *z* have been given. It was further discovered that none of these microörganisms had any pathogenic properties, for intra-peritoneal injec-

tions of cultures of them into guinea pigs did not produce any phenomena indicating virulence, save a slight diminution of the body in weight. The characters of the non-identified germs and their cultures are fully described; bacillus *x* and coccus *z* caused passing loss in weight. *British Medical Journal.*

WATER IN THE GOUTY DIATHESIS.

By Edward P. Adams, M.D.

In a general way I may say that fairly large quantities of water or liquid are theoretically and empirically useful, in that by diluting the fluids of the body they seem to hold in solution, or take up a larger percentage of the uric acid, and also to prevent deposits forming. All drinks should be taken hot if possible, because if cold, or especially if iced, they waste animal heat, and a depression of nerve force takes place in the economy, in the effort to restore the normal heat again. If hot water cannot be taken between meals it can be taken while eating, and I have found that it is well borne, and does not interfere with digestion, as does cold water, for it is quickly absorbed, and does not do more than delay digestion for a few minutes. The humbuggery of the past, that water should not be taken while eating, is, I trust, "a thing of the past," for it is nowadays quite the proper thing, dietetically, as well as gastronomically, to use hot soup, bouillon or consommé with one meal a day, and it is a wise habit to develop.

As to mineral waters generally, and especially the carbonate of lithia waters, I quite agree with Osler when he says, "much of the humbuggery in the profession still clings about mineral waters, more practically so-called lithia waters. There is not the slightest evidence that the carbonate of lithia has any influence in promoting the solubility of uric acid." In my experience—and it is quite extensive—in so far as mineral waters are concerned, I am convinced that Osler is justified in his assertion. I believe that they do good only in so far as they serve to introduce into the system a large quantity of water, expensive as it is, and the more expensive it is, the more it is likely to be taken, for a patient will drink water for which he has to pay, when he will not drink largely of that which is easily obtained. And, except on this ground, I have discontinued the use of them, only

giving them to those patients who still believe in them, and then only for the service that the water itself, minus the carbonate of lithia, will perform. For the past ten years I have succeeded in having my patients with gout, after a few day's education, continue the use of hot water in large quantities, in which was sufficient piperazin, or fluid extract of corn silk to equal daily 15 grains of piperazin, or half an ounce of the fluid extract of corn silk. In all cases of acute attack of gout my dietetic treatment was commenced immediately, supported and assisted during the first forty-eight hours by twenty grains a day of piperazin in large draughts of hot water, or the use of maizo-lithium in fluid dram doses in a tumbler of hot water every four hours, and in chronic cases continuing the use of either one or the other in smaller doses but in large quantities of hot water. Freshly made fluid extract of corn silk acts admirably in the same way, but it must be freshly made, and from the green fresh silk, which can only be done during the season of sweet corn, and as the lithia, either the citrate or benzoate, has remarkably solvent effects on uric acid, I have often combined it with the fluid extract of corn silk, in which the value lies in the maizinic acid, so when the corn silk cannot be taken from the growing corn I use the maizo-lithium. It is cheaper than piperazin, and has no depressing effects; indeed, corn silk, since its introduction to notice as an uric-acid solvent in 1882 by Professor Castan, has grown on the profession as a valuable drug in these gouty conditions. Its introduction into the system brings about a balance of the nitrogenous equilibrium without any disturbance; produces a rise in the arterial and a fall in the venous tension. Its use is supported by such authorities as Dennie, of Bordeaux; Queirel, of Marsiellles; Pons, of Nerac, and many other observers in uric acid conditions, and not once in ten years' use have I been disappointed in its results. I give it to all my gouty patients, in one form or another, oftentimes with lithia, sometimes alone, daily for months as a largely diluted drink with meals.

According to Dujardin-Beaumetz, coffee is not deleterious in gout when it acts as a diuretic, otherwise it does harm and should be avoided. Milk is another valuable drink for the gouty, and when it constipates should be combined with seltzer water; it should always be fresh and sweet. Buttermilk is grateful and refreshing to some, and furnishes likewise a good excuse for ingestion of fluid.

Jour. Amer. Med. Asso.

THE PERILS OF ARTIFICIAL TEETH.

A sad tale of the dangers of high days and holidays is related in the otherwise prosaic pages of the *Bulletins et Mémoires de la Société Anatomique de Paris*. On Easter Sunday a married woman, aged 32, one in the ranks of the *bourgeoisie* of Paris, was feasting, not wisely but too well, in a restaurant, when part of her tooth-plate broke off and was swallowed. It included two incisor teeth on a portion of the plate, armed with two sharp incurved hooks. She applied at the Hôpital St. Louis at once, when not in a condition to feel much pain. The house surgeon on duty succeeded in passing a sound into the stomach, as reflex irritability was in abeyance through intoxication; nothing could be felt, but the patient believed that the plate passed downward. On the next day the patient could swallow solids and liquids. There was a deep scratch on one tonsil, and she complained of distinct pain in the left side of the neck at the level of the larynx. She was not yet thoroughly sober; yet, as it turned out, she was accurate. A specialist carefully made an exploration with the Roentgen rays, but no evidence of a foreign metallic body in the pharynx was thus obtained. On the third day, April 4th, the patient was better and at least sober, but there was rise of temperature without any local symptoms; she could still swallow solid food. But on the next day there was distinct swelling in the neck, and free expectoration of rusty sputum. Diffuse cellulitis and pneumonia were diagnosed. On April 6th the swelling was marked on both sides in the carotid region, and deglutition had become painful. Retropharyngeal suppuration clearly existed. An incision was made along the anterior border of the sterno-mastoid (the left, we presume, though the side is not stated), and the carotid and jugular pushed aside. Morestin, the operator, then succeeded in opening a fœtid abscess behind the lowest part of the pharynx. It contained gas. When it was emptied the operator once more explored its cavity, and detected the piece of tooth-plate, which was carefully extracted. Relief was immediate, but the pneumonia advanced; the patient, owing to her intemperate habits, could not resist so formidable a complication, and she died within twenty-four hours of the operation. The dangers of swallowing a tooth-plate during anæsthesia or intoxication are well known. The gravest feature in this case, as Morestin admits, is the failure of the X-rays to detect the piece of plate, though the patient knew

she had swallowed it, and had, as the after-history proved, accurately located it before the X-rays were used. Had the operation been undertaken at once, on the strength of this unhappy woman's localizing ability, she would, M. Morestin insists, have been saved.

British Medical Journal.

ETHER VERSUS CHLOROFORM.

The narrative of the introduction, declination and revival in the use of ether as an anæsthetic in England is one of the most curious in the history of medical thought in the nineteenth century. Mr. Pridgin Teale's article on ether in the recently issued *Encyclopædia Medica* presents us with his view of the subject as an operating surgeon. In the opening pages of this article Mr. Teale traces the story of the revival of ether, attributing it to the well-known paper of Joy Jeffries, "Ether in Ophthalmic Practice," the stimulus which set the pendulum of English surgical opinion in motion, and caused it to swing back from the almost universal advocacy of chloroform to the adoption of the older but then obsolescent anæsthetic. At first ether had been vaunted, and as the pages of contemporary journals show, used by all sorts and conditions of men with small regard to its peculiar properties, and scanty knowledge of its possibilities and limitations. It was the first volatile anæsthetic appealing for surgical suffrage, and was handled with a diffidence almost amounting to fear by those who gave it, and looked upon somewhat askance by the operator unaccustomed to deal with humanity in a condition of semi-anæsthesia or profound narcosis. In the one case the delirious shouts and struggles were discomposing, and in the other the death-like calm gave rise to misgivings. The various kinds of apparatus invented during the first year or so of ether-giving were appalling in their complication and bulk, and in most instances were extremely ill adapted for the purpose for which they were designed. Then came stories of difficulties and failures. The pundits of surgery declared ether was unreliable and probably unsafe.

At the critical moment, when the more thoughtful minds were studying and attempting to improve the means of administering this recalcitrant vapor, came Simpson with a pocket handkerchief and a vial with the new anæsthetic chloroform. All dau-

gers and difficulties were to be removed, and the operating theatre, passing through what Simpson himself calls the "shambles" stage and the bear garden experiences of imperfectly given ether, became calm. The surgeon could do his work without let or hindrance, and with a free mind. The unhappy death, however, which occurred under the new anæsthetic within three months of its introduction, put an end to the sense of security which at first reigned supreme. Then, as now, many persons contended that the anæsthetic was less to blame than the method employed in giving it; but the increasing mortality under its use gave rise to an increasing anxiety, and prepared the way for a revival of the popularity of ether. The Committee of the Royal Medical and Chirurgical Society was appointed to reinvestigate the case of Chloroform *vs.* Ether, and although admitting the perils of the former, the committee declared the slow action and imperfect methods of using ether an insuperable difficulty.

This is, of course, ancient history, and Mr. Teale's work lies not in traversing such a judgment. Clover's apparatus, and the teaching of the modern anæsthetists have done that already, and have shown that ether can be given more rapidly than chloroform and without any of the drawbacks of former days. The whole question has at present assumed an entirely new phase. Given the best methods of administering chloroform and of ether, the conflict is still waged between the rival camps as to which is the best all-round anæsthetic. Mr. Teale, after twenty years' experience of chloroform, adopted ether, and now, after two more decades in which he has used that anæsthetic, affirms unhesitatingly that ether is safer, and, if properly given, quite as serviceable as chloroform.

The object of his paper is to teach how this proper method can be acquired; but as his directions are practically those found in the special manuals on anæsthetics, we need not pause to consider them in detail. It is interesting, in view of recent discussions before the Society of Anæsthetists, to learn from Mr. Teale that he, as a surgeon, has found ether wholly satisfactory in abdominal surgery, in throat work, and for young children and aged persons. Those who heard the eloquent advocacy by Mr. Warrington Haward of the use of ether for all sorts and conditions of men, women and children in one of those discussions, will find in Mr. Teale's pages a whole-hearted agreement upon this subject.

The two stock objections urged by those who use chloroform in preference to ether have recently been its after perils, that is, bronchitis, pneumonia, etc., and the less profound narcosis, which causes rigidity, hurried breathing, and so on. These, Mr. Teale's experience goes to show, are more theoretical than real. He has never seen ether bronchitis, and agrees with those anæsthetists who regard it as being most rare and, when present, commonly due to exposure of the patient to cold before, during, or after the operation.

That surgeons like a patient to be profoundly anæsthetized is natural, but whether the condition, always one of extreme risk, is often desirable from the patient's point of view, seems fair matter for argument. We trust Mr. Teale's useful directions will obtain a wide hearing, as they focus in a small space his great experience. It is, perhaps, a pity that Mr. Teale's space did not allow him to emphasize the keen sense of responsibility which should exist in those who undertake to give anæsthetics. It is a matter of regret that this frame of mind is not always met with in the occasional anæsthetist, and its absence is a risk both to the surgeon and to the patient.

British Medical Journal.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

EDITORIAL.

THE "NATIONAL INSTITUTE OF DENTAL PEDAGOGY."

Fiske's aphorism that "In a very deep sense all human science is but an increment of the power of the eye and all human art the increment of the power of the human hand," contains an elemental truth which lies at the basis of all human progress. "Vision and manipulation," in the last analysis what is there in all science or in any art of which these primal powers are not the essential factors?

Indeed, however newly formulated, this is a truth coeval with the development in man of that power to classify and correlate experiences which is the essential element of reason. The primeval worker who first taught his untamed offspring to shape in wood or stone the rude weapons of warfare or the chase, with whose making his conquest of the world in which he lived began, acted upon it equally with the cultured scientists of to-day--his latest lineal heirs to whatever increment of acquired constructive skill and increased brain capacity he was able to bequeath to posterity.

The primitive teacher sought to build a tool and not a brain; his wiser successors strive to build brains as well as tools. Broadly considered, in that one distinction lies the chief differentiation between the empirical and the scientific method of instruction. The first, with purpose narrowed to a present gain, looks

to no ulterior or higher end; whereas, by the latter method, special knowledge is based upon elemental principles, and is taught in its true relation to all cognate knowledge. Thus deeply and broadly based it grows as a progressive and enduring accretion, and not as an isolated concretion of acquired capacity.

Such was the inspiring principle of the few zealous teachers who seven years ago organized the National School of Dental Technics, whose seventh annual meeting was recently held in Philadelphia; an organization which has done so much to advance the standard of technical training in dental schools through education of the eye and hand by progressive and systematized practice in manipulative processes and constructive work.

The history of this movement shows that in its inception it was regarded with indifference, if not with disfavor, by many who thought that the consideration of methods of instruction more properly pertained to and could more effectively be accomplished by the National Association of Dental Faculties.

Events have, however, demonstrated that the time devoted to the annual meetings of that organization is so fully absorbed in the discussion of matters relative to dental legislation, intercollegiate relations and school governance as to leave but little, if any, opportunity for the more purely pedagogical features of school work.

Hence the "reason for being" of the School of Technics has been clearly manifested and its existence justified, not only as having a purpose to fulfill, but as having well fulfilled a purpose. Much of the improvement in college work during the last few years is unquestionably due to the efforts of the School of Technics, and to the opportunity for the examination, comparison and discussion of methods of teaching which its meetings have afforded.

By personal conference with enthusiastic teachers, and by demonstrative evidence of the results which they have effected, the most laggard conservatism has been stimulated, and a spirit of wholesome and generous emulation aroused, whose influence

is already noteworthy, and is destined to be increasingly manifest in the years to come.

In no department of dental technics has recent advancement been more pronounced than in the development of anatomical knowledge and artistic perception of tooth forms through the system of tooth dissection, drawing and modeling now so generally adopted as a part of the regular course of instruction in dental schools.

In view of the obvious importance and value of these studies, from the artistic as well as the scientific standpoint, it seems inexplicable that such elementary training of the eye and hand should have been so long neglected, and that even now there are teachers in dental schools who regard drawing and modeling as a waste of time which might more profitably be directed in more "practical" directions.

It is true that since the multiplication in the number and variety of tooth molds, and the vast improvements effected of late years in the shapes and shades of molded teeth, there is not the same necessity for individual skill in tooth carving and modeling that existed before these improvements were effected; for in that earlier period dentists were largely dependent upon a personal knowledge of that art for the attainment of the best results in prosthodontia.

Still the artistic need for an intimate knowledge of tooth forms is not lessened by the ability to secure what, viewed singly, are, even at their best, but imperfect imitations of nature's handiwork. The artistic excellence of a denture is dependent not alone upon the beauty of the individual teeth of which it is composed, but upon mass effects. Taken singly they are but the stones of the mosaic or the pigments of the painter which the artist must blend into harmony of design, as nature blends her tinted tissues in that marvelous mosaic, man.

"Art is long," and the art through which this can be fully achieved in dental prosthesis is not to be acquired in the fleeting time of a college course, but, in its highest perfection, is the

outgrowth of years of study and practice. Even for the most experienced and the most skilled there always remains something to be learned, so inexhaustible is the "infinite variety" of the combinations through which nature produces her effects.

Not only is the artistic reproduction of tooth forms a long and difficult, but also a special art, one in which the most skilled sculptor, draughtsman, or engraver fails to produce acceptable results until after long practice, directed necessarily, first, to the simple recognition of the infinitely fine lines and curves which give character to the human teeth, and then to their representation in whatever medium may be employed.

Although porcelain teeth are now so improved as to be almost universally available for the production of artistic results, they always lack something of sharpness of outline, even when they have received it from the mold; well defined lines often being blurred and sharp edges and angles rounded under the process of vitrification by fusion.

Indeed, for the purposes of art, porcelain teeth, however excellent, can be regarded only as blanks approximating the forms required for the particular case, but always needing the touch of the artist hand to perfect their shapes and blend them into natural alignment with their fellows, and into harmonious correspondence with the requirements of the case as influenced by age, sex and temperament.

The School of Technics has largely aided in securing advancement in the methods of teaching not only in this and other branches relating to dental prosthesis, but also in orthodontia and general operative procedures, and much of the time of the meeting in Philadelphia was devoted to the reading and discussion of papers relating to these subjects.

Hitherto the annual meetings of the school have been devoted almost exclusively to their consideration, but this year was marked by an advance into the broader field of general pedagogy as applied to dental schools, and there was much discussion of the relative merits of text-books, syllabi, lectures, recita-

tions and quizzes as aids to instruction in the so-called theoretical branches.

In concurrence with this enlargement of the scope of its work the name of the association has been changed to that above given, the "National Institute of Dental Pedagogy," and there can be no question that there is a much needed work to be done in that broader field of activity upon which it has now entered.

"CONTRACT DENTAL SURGEONS."

Elsewhere in this issue of the BRIEF is reproduced the text of a bill introduced by Mr. Otey in the House of Representatives, December 9th, 1899, entitled "A bill to provide for the appointment of dental surgeons in the United States Army."

This measure has been accepted by the Committee on Legislation of the National Dental Association, and others who are coöperating with them, as a substitute for the Hull bill, which was presented at the last session of Congress, and differs from that measure in the fact that those appointed under its provisions do not receive rank as commissioned officers.

The proposed enactment provides that appointments shall be made by the Surgeon-General, with the approval of the Secretary of war; that candidates shall be graduates of standard medical or dental colleges, and of good moral and professional character, and that they shall pass a satisfactory examination before a board of three dental surgeons selected by the Surgeon-General, with the approval of the Secretary of War, with reference to their fitness for assignment to the special service of conducting the examinations and supervising the operations of the others.

The proposed enactment, while not fully meeting the expectations of the dental profession, is certainly a vast improvement upon the plan which has been proposed and advocated in certain quarters for the organization of the army dental service upon the basis of the enlistment of dentists as non-commissioned officers, a measure which could only result in an ignominious

lowering of professional status, and to which the dental profession should never submit.

Only those who have had experience in military life fully realize the impassable social gulf which, either in the army or in the navy, separates the commissioned from the non-commissioned officer. The first is not only an officer, but, constructively, a gentleman; the latter one to whom, in the conventional sense, the term gentleman does not apply, and who cannot be received on terms of social equality by commissioned officers until he has been promoted to their own grade.

The official title of the so-called "contract surgeon" in the medical department of the United States army is Acting Assistant Surgeon; that is, although a civilian, he assumes the duties and has the social status of a regularly commissioned surgeon of that grade.

The latter is appointed and commissioned by the President, with the approval of the Senate of the United States; the former is appointed by the Surgeon-General, with the approval of the Secretary of War. The former appointment is for life, with progressively increased rank and pay; the latter is for a period limited by the terms of the contract which the appointee makes with the government to render certain service for a definite emolument.

At present the pay of an Acting Assistant Surgeon in the United States Army is one hundred and fifty dollars a month. He is entitled to mileage when traveling under orders, and also to quarters, either in the field or at the post to which he is assigned for duty.

While, as already intimated, the bill under consideration is not all that could be wished for, it is all that at present can reasonably be hoped for. It is, moreover, a legislative possibility. The practical efficiency of a corps of trained army dentists is yet to be proven. If when subjected to an actual working test in garrison, camp and field army dentists demonstrate their usefulness to the forces to which they are assigned, there will be

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but little difficulty in securing for them positions as a branch of the medical corps, with rank and pay commensurate with the value of the service they render those upon whom the nation depends for security in the piping times of peace and for defense in the troublous days of war.

In the July issue of this journal the need for skilled dentistry for the men who fight our battles on land and sea was editorially urged. Additional argument in favor of their appointment will be found in the article on "Dentists in the Army and Navy," reproduced from *The Dentist*, of London, in this number of the BRIEF. From this it appears that European powers, as well as our own government, are taking into serious consideration the employment of skilled dental service for the military and naval forces of their respective countries, and it is difficult to understand what valid objection can be urged against a measure so necessary to that physical well-being upon which their fighting effectiveness so largely depends.

In this country, however, no measure of this character, no matter how reasonable in its provisions, can gain the attention of Congress or secure its favorable action unless strongly and persistently urged by those desiring its enactment, and the committee having the matter in charge earnestly request all who believe that our soldiers have "a right to the timely and suitable care of their teeth," and to the best possible surgical appliances in cases of maxillary injuries received in battle, to write at once to the representative of the district and the senators of the State in which they reside, soliciting their vote and influence for the passage of House Bill, No. 972.



ARMY DENTISTS.

(Proposed Congressional Enactment.)

A BILL

TO PROVIDE FOR THE APPOINTMENT OF DENTAL SURGEONS FOR SERVICE IN THE UNITED STATES ARMY.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Surgeon-General of the Army, with the approval of the Secretary of War, be, and he is hereby, authorized to employ and appoint dental surgeons to serve the officers and enlisted men of the Regular and Volunteer Army in the proportion of one dental surgeon to every one thousand of said Army. Said dental surgeons shall be employed as contract dental surgeons, under the terms and conditions applicable to army contract surgeons, and shall be graduates of standard medical or dental colleges, trained in the several branches of dentistry, of good moral and professional character, and shall pass a satisfactory professional examination; Provided, That three of the number of dental surgeons to be employed shall be first appointed by the Surgeon-General, with the approval of the Secretary of War, with reference to their fitness for assignment, under the direction of the Surgeon-General, to the special service of conducting the examinations and supervising the operations of the others, and for such special service an extra compensation of sixty dollars a month shall be allowed; Provided further, That dental college graduates now employed in the Hospital Corps, who have been detailed for a period of not less than twelve months to render dental service to the Army, and who are shown by the reports of their superior officers to have rendered such service satisfactorily, may be appointed contract dental surgeons without examination.

THE ARMY AND DENTISTRY.*

The alteration, in the wrong direction, in the proportion borne by extractions to fillings during the past year, and its alleged cause in an annual deterioration of the nation's teeth, was far from being the only subject of supreme interest to dentists brought up at the annual dinner of the Dental Hospital, reported

* Editorial from *The Dentist* (London), Dec. 28th, 1899.

in our issue of December 7th. Most of the speakers made some mention of the war in which England is now engaged, and, as a matter of course, reference was also made to the "close connection between dentistry and good fighting," and to the numerous "rejections of would-be soldiers because their teeth were defective," to which attention has so often been called of late, not only in the columns of this journal and at the meetings of the dental societies throughout the country, but even in official speeches of members of the Government in Parliament itself. Much has been said; but, unless we are very much mistaken, little or nothing has been done.

No time could be more opportune than the present, while the thoughts and feelings of the public are so largely occupied with the prowess of our soldiers and with considerations of the welfare of "the absent-minded beggar," on whom the protection of our country's honor and wealth depends, for again calling to mind the importance of providing him with regular dental attendance. It is, moreover, the dentists—those who know best the necessities of the case and their causes—on whom the duty devolves of making strong representations to the authorities on the subject. Now, moreover, is the time when the British Dental Association might well make some effort to obtain from the seat of war some statistics as to the results to our troops in South Africa of there being no adequate and official provision for the dental treatment of our troops in the field and of our wounded.

In a recent issue of the *Zahnärztliche Wochenschrift* (the *German Dental Weekly*) there is an article by Assistant Professor Port, of Munich—Physician-in-Chief to the Bavarian Army Reserves—on "Dentistry in the Battlefield." Dr. Port gives some very interesting statistics bearing on the subject from the "Sanitary Official Reports over the Franco-German War of 1870-71." The total number of wounded was 116,821. Of these the number wounded in the jaws was no less than 1,154, or nearly one per cent. Injuries to the upper jaw alone were 731, to the lower jaw alone 365, and to both jaws 58. The number of those who were cured was 1,053, while 101 died of their wounds. All these cases received suitable medical treatment; but, "so far as concerns the fitness of the jaws for the performance of their normal functions, the results were, in most cases, very unsatisfactory." For it is, of course, just in such cases as those of fracture of the jaw, that surgery needs the helping

hand of dental technique. Dr. Port quotes Bernhard von Langenbeck, who, as the result of his exceptionally great experience of surgery in war, says: "I should not like to again accompany an army in a campaign, unless I had, beforehand, assured myself of having the assistance of technical specialists for cases of injury to the jaws, and so forth. Every hospital practitioner of the present day has by his side a dentist, to whom he entrusts the dressing of fractures of the jaw, the prosthetic restoration after resections," etc.

The need of such help will no doubt be more acutely felt by our army in the war with the Boers than in war either with savage tribes who use the assegai or rush to close quarters, or with a European enemy who, like our own soldiers, fight much with sword and bayonet; for the Boers are, before everything, marksmen, and, as the evidence of the statistics from the Franco-Prussian War show, the most frequent cause of injury to the jaws is from gunshot wounds. In these the lower jaw is often shattered so as to necessitate a partial resection. As Dr. Port points out, unless a suitable prosthetic appliance (not necessarily a permanent one) is inserted immediately the remains of the lower jaw contract and fall together in consequence of the contraction of the muscles in the direction of the central line, and the way in which the soft parts heal over often makes it impossible, later on, to bring back the stumps of amputated parts to their normal position. He also shows how the time of detention in the field hospitals for men wounded in the jaws would be much shortened if the troops were accompanied by dentists provided with the necessary appliances for properly treating the cases that arise, a matter of great importance where, as in all modern war, the number of the wounded in a single engagement is very large.

The suggestions of our Bavarian colleague for the dental service in a future campaign are well worth considering by the British military authorities as, *mutatis mutandis*, not unsuitable for us. For every army corps he would have one consulting dentist appointed. As this dentist would often have to be called in consultation, or to operate together with the consulting surgeon or the other army surgeons, it is advisable that he should be a dentist with the double qualification. It is also advisable that such dentists should be chosen as have been accustomed to working together with surgeons either in the university clinics or in the hospitals, so that they may have experience of kinds of

prosthetic work rarely required in ordinary dental practice. These dentists could accompany the consulting surgeons on their rounds from field hospital to field hospital, and in each place prepare the necessary apparatus. The subsequent treatment could be easily carried out by the surgeon in charge. The men could then be turned out of hospital at a relatively early date, collected in the large reserve military hospitals, and entrusted for further treatment to experienced dentists.

These could, after the healing of the wounds to the soft parts, prepare suitable permanent prosthetic appliances out of rubber (which, of course, could not be done in the field hospitals on account of the need of having apparatus, such as vulcanizers, etc.). The instrumentarium required by the military dentists accompanying an army in the field is small, or, at any rate, not too large to be carried on horseback.

There is already almost perfect provision for the dental needs of the army in Bavaria. There there are already dental courses held, and even dentists appointed at the chief garrisons.

Surely our military authorities and our Government might well be asked to add strength to our army for war, improve the health of our troops in peace, and minimize the terrible sufferings of our wounded in the field by making some regular and adequate provision for the dental needs of our soldiers!



Questions and Answers.*

Additional replies received in regard to methods of root filling are as follows:

It is probable that no phase of dental practice has received more attention than the subject of root-canal filling. As your inquiry relates especially to materials used for this purpose, a consideration of methods of treatment previous to filling is unnecessary in this place, further than to say that the most thorough asepsis is an absolute requirement in all such operations. After an experience with almost every root-canal filling known to the dental profession, I have adopted, for the majority of cases, the use of balsamo del deserto, which is introduced into the canal by means of an electrically heated copper point, fine enough to penetrate wherever a very fine broach can be used. After a canal has been sterilized and dried by ordinary methods the heated copper wire is introduced until a slight sensation of heat is perceptible to the patient. The balsamo del deserto is then conveyed to the cavity upon a suitable instrument, and pumped into the canals with the copper point, the heat softening it so that it flows readily to all points. The excess is removed by wiping the cavity with cotton saturated with chloroform and the mouths of the canals covered with gutta-percha, over which is placed phosphate-cement, and the cavity is ready for filling.

The following advantages are claimed for this method: The drying and sterilizing effect of heat in the canal; the antiseptic qualities of the balsamo and its ability to perfectly fill the canal and penetrate the tubuli; and, finally, that in case of necessity it is easily removed.

John M. Fogg, Philadelphia.

In large or medium sized pulp canals I prefer to fill with medium grade gutta-percha (softened by heat), introducing it in very small pellets. In exceptional cases I may fill the apex of a large canal with gold and the remainder with the gutta-percha. In smaller canals I fill the apices with cotton impregnated with thin oxychlorid, and the remainder with gutta-percha, so that

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

in case of fracture or any condition requiring the use of a porcelain crown there will be no difficulty in clearing the canal for the reception of a dowel. In still smaller canals, as in molars, I may fill entirely with the cotton and oxychlorid, while in canals so small that there is difficulty in introducing the finest broach I pump a little thin oxychlorid in the entrance to such canal, and endeavor to crowd it toward the apex with a pellet of gutta-percha placed behind it and used as a piston, forcing the gutta-percha into the entrance of the canal if possible, or in case there is difficulty in so doing I fill the pulp chamber with the gutta-percha, and then make pressure upon it with a large burnisher, hoping by this means to force the thin oxychlorid into the small canal.

Alfred R. Starr, 8 East 92d St., New York City.

I use gutta-percha almost exclusively in filling root-canals in general, making use of that known as "temporary stopping." I find that it can be packed into very minute canals with comparative ease and to better advantage than the higher heat grades.

Robert Huey, Philadelphia.

Before taking up my specialty of surgery of the mouth I, of course, filled root-canals, and occasionally do so yet. In this, as in other things, however, I have no hobby as to one method or material. I select from three materials, cement, gutta and chloro-percha and paraffin, whichever in my judgment is best suited to the given case, keeping always in mind the size of the canal, its tortuosity, its accessibility and also my ability to manipulate certain preparations under certain conditions. The results are equally good with either of the three materials when proper aseptic precautions are taken.

M. I. Schamberg, Philadelphia.

It is my custom to enlarge the root-canals with Gates-Gidden drills. If the apex foramina are more or less opened by disease or accident they are closed with carbolized orange wood, being particular to exactly gauge the diameter and length. In ordinary cases the apical end of the canal is filled with oxyphosphate cement, iodoform mixed with the liquid. I think the filling material is of little importance compared to sterilization of root-canal and removal by enlargement of canal of septic material, or material susceptible of becoming so. This plan also makes the apex more accessible and affords a better opportunity of thoroughly sealing the same. Mechanical asepsis first, medical asepsis next.

Jules J. Sarrazin, New Orleans, La.

I have been deeply interested in the replies published in answer to your inquiry as the preferred methods of filling root-canals; the answers have not only been interesting but of much practical value. The methods employed, however, appear to be as varied as the number of the replies, and as a result would be most perplexing to a beginner. One man appears to have as his foremost object the filling of the canal in such a way that he is prepared for future trouble, apparently to the detriment of a permanent result. This appeals to me as a timid method, one in which the operator lacks confidence in his ability to so perform the work that the possibility of after disturbances are reduced to the minimum.

Another speaks of using sterilized cotton without designating what part or how much of the canal is filled in this way, but one would assume that the entire canal and chamber were filled with this material, another method which appears to carry with it a lack of confidence to more thoroughly perform the work. Closing the foramen with tin foil is also given as a preferred method; would it not have been better if the gentleman had said I attempt to close the foramen with tin foil? This is practically what he does, and I will venture to say that in nine cases out of ten the tin foil is not very closely associated with the foramen. I am anxiously waiting to learn other methods which have been promised, for I must confess that while those already given are of value, because something may be learned from each one. I do not possess nor have I yet been informed of an ideal method of closing and filling root-canals.

W. W. L.

Question 72. I present the following case for advise. A gentleman, twenty-seven years of age still retains his upper left deciduous cuspid. The tooth has been forced somewhat out of place by the forces of occlusion, and is bad in color. I can locate the crown of permanent cuspid above, but there is barely sufficient space in the arch for the deciduous tooth. Would it be wise to attempt to bring the permanent cuspid to its normal position, and if so what would be the best method to pursue?

C. N. Hoagland, Elgin, Ill.

Question 73. Could the presence of a dental plate in the mouth in any way interfere with the flow of saliva? *B. S. B.*

There is little doubt but that the presence of a plate in the mouth might in a measure interfere with the free flow of saliva. This would refer particularly to the lower jaw, in which case the rim of the plate might be so constructed that it would cause pres-

sure upon the ducts from the submaxillary and sublingual glands. Generally considered, however, the presence of a plate in the mouth is inclined to act as a stimulus to the salivary secretion, causing, particularly in the beginning, an increase in the amount of saliva.

Question 74. Mr. G.; aged fifty years; merchant; syphilitic; has erupted but two of his permanent teeth (superior centrals); has had several of his deciduous teeth extracted; those remaining are of good quality and well formed. There are spaces between all teeth of from one-sixteenth to one-eighth of an inch. On September 15th he complained of pain in the right inferior second molar. Upon examination I found an apparently sound tooth elongated and loose (occluding tooth above had been extracted) and extracted it. No relief. Upon his return in a day or two I painted gums with aconite and iodine, this gave temporary relief. On October 12th I lanced the gums through to process, and cauterized with carbolic acid. On October 15th the patient returned saying he had been unable to sleep on account of pain in the side of his head and face. My diagnosis is: an unerupted first permanent molar with a layer of alveolar process over it, causing pressure on third division of fifth nerve. I advised removal of process over tooth, was I right? Patient is now waiting to see if it "wont" get better, and if not, will probably take my advice.

S. Locke, Taos, N. M.

RECENT PATENTS OF INTEREST TO DENTISTS.

638973, Dental matrix retainer, Charles F. C. Mehlig, New York, N. Y.

639536, Dental plugger, Charles H. Davis, Worcester, Mass.

639585, Dental filling material, Charles H. Land, Detroit, Mich.

639595, Cleaning pad for dentists' tools, Josephine A. Mitchell, Lewiston, Maine.

32005, Design, fountain cuspidor, Henry E. Weber, Canton, Ohio.

640551, Artificial tooth crown, Charles A. Fones, New York, N. Y.

340930, Attachment for dental dams, Martin O. Nelson, Natick, Mass.

641170, Dental appliance, Walter J. Thurmond and E. W. Clark, Macon, Ga.

Practical Points.*

To Cleanse the Cement Slab.—Keep a bottle of ammonia water convenient for cleansing your cement slab and instruments.
A. M. Jackson, Dental World.

Pulp Protection Under Oxyphosphate Fillings.—Oxyphosphate will destroy the life of the pulp when placed in a deep cavity. To prevent this line the entire cavity with gold foil.

E. D. Downs, Dental Cosmos.

Protection of the Eyes while Soldering.—When engaged in soldering, relief from the glare of the flame will be derived from the use of plain smoked glasses, which should be quite dark.

W. T. Jackman, Ohio Dent. Journal.

Cavity Lining.—A good clear varnish for lining the bottom of cavities is made by dissolving pure clear copal gum in equal parts of alcohol and ether. To protect the pulp from thermal changes, place a thin pad of asbestos paper on the bottom of the cavity while the varnish is still soft.

A. M. Jackson, Dental World.

Vegetol, a Prophylactic Dentifrice.—In this new preparation the powder is made from the hard parts of cereals as a mechanical cleanser and as a menstruum for carrying potassium chlorate and sodium borate. This powder, which is sweetened with saccharin and flavored with menthol, serves to cleanse the teeth and arrest decay, purifying the mouth and keeping the saliva alkaline. It is remedial in tonsillitis and pharyngitis, and may also be used internally for fermentive and putrefactive indigestion, allowing a five-grain tablet to dissolve slowly in the mouth.

M. H. Fletcher, Ohio Dental Journal.

Gold Solder.—For repairing broken metal, fine instruments, etc., when heat would be injurious:

FLUX.—Metallic sodium.....	1 part.
Mercury.....	50 parts.
(Keep in glass-stoppered bottle.)	
SOLDER.—Silver.....	8 parts.
Tin.....	10 parts.
Bismuth.....	1 part.
Platinum.....	1 part.

Melt together and cast an ingot; rasp to filings. Mix filings 3 parts and flux 1 part to a smooth paste when about to use. Smooth and plastic as potter's clay; makes joints that are almost inseparable. Omitting the bismuth gives a granular mass suitable for filling crevices. Omitting the platinum reduces the strength and requires an hour to harden.

Old Book of Formulas.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Consideration for the Patient.—The compound tincture of aconite and iodine, applied to the gums after the removal of the rubber-dam, will serve in a measure to ameliorate that "used-up" feeling of the mouth which too frequently follows oral manipulations.

L. Van Orden, Pa. Med. Dental Gazette.

To Cut Gold Foil in the Form of Ribbons.—Lay a sheet of gold on a sheet of white writing paper; cover with another sheet of paper and a piece of gold on that, and so on, until there are as many sheets of gold as required. Fold the whole over twice, as in folding a letter, and cut through gold and paper. There will be no torn edges, and the gold will not come in contact with the hands.

Henry Barnes, Ohio Dental Journal.

Preparation of Amalgam.—When the alloy is as usually called ready for the cavity, place the mass on a slab and pound it thoroughly, using a mandrel with head the size of a pea, and hand mallet. Pound it until it works tough and sharp. Then place it in the cavity in little smooth blocks and pack with smooth burnishers, removing excess of mercury from each piece. Pluggers do not condense or pack the alloy, but rather cut up and push about that which has been placed in position. More alloy and less mercury remains in the filling by this method.

I. R. Sims, Dental World.

Treatment of Abscessed Teeth.—I find it of vital importance to influence, medicinally, when and where inflammation exists, either acute or chronic. I prefer a non-coagulating antiseptic, which will penetrate beyond the tooth or root. I invariably use the oil of cinnamon, with the most satisfactory results. To insure success, however, I always seal medicines with a cement filling. If a tooth or root is worth saving for future usefulness it certainly is worthy the most painstaking attention in every detail of the operation. Unless a root is split, perforated, or necrosis exists, success is certain.

Theo. Siqueland, Items of Interest.

Reproduction of Gum Tissue.—Where resorption has followed extraction, the gum festoon may be reproduced by taking the mucous and submucous tissue, with some fibre, from the palatal or lingual portion of the jaw, in the form of flaps cut in festoons as wide as the teeth where they join at the interproximal spaces, and stretching it over the faces of the teeth, allowing the flaps larger than required to provide against shrinkage. The cutting can be done with but little pain with cocaine or eucaine hypodermically injected. The granulating surface from which the flaps are taken may be packed with iodoform gauze and cleansed with some antiseptic. With that class of patients showing the gum line of tooth contact this plastic operation opens up a new line of operations, giving most pleasing results.

H. C. Register, International Dental Journal.

Polishing a Gold Crown.—To prevent marring a gold crown when polishing, fill it with modeling compound, and while it is still soft insert the end of a stick or instrument handle into it. When finished, soften the composition and remove.

Dental Hints.

To Remove the Odor of Iodoform from the Hands.—Dr. Ricketts is authority for the statement that vinegar, applied freely to the hands after they have been cleansed with soap and water, will effectually remove the odor of iodoform.

Medical Review.

Removal of Old Amalgam Fillings.—The galvanic current will eliminate the mercury from an old filling. Remove the mercury as it sweats from the metal, and there will only remain so much powder or alloy, which is readily removed with chip-blower and spoons. *B. J. Cigrand (Trans.), Dental Digest.*

Root-canal Filling—Carbonized Cotton.—This porous, soft and flexible carbon, in itself a disinfectant, is also an excellent antiseptic, every fibre being impregnated with anhydrous boracic acid. All septic masses, which may appear in spite of careful treatment, are readily taken up by it and made harmless. It can be brought to red heat before using. No irritation ever results within the tooth, nor in surrounding parts.

Elof Färberg, The Dentist.

The Essentials in the Treatment of Pyorrhea.—I. Thorough removal of all deposits.

2. Application of remedies (use that which in your own experience has produced the best results).

3. Correction of mal-occlusion.

4. Fixation (these teeth need absolute rest).

5. Massage; instruct the patient to stimulate the gums by finger massage several times a day.

6. An astringent and antiseptic mouthwash to be used several times a day.

W. A. Barrows, Dental Cosmos.

Swiss Pivot Broaches.—These broaches, found at any dealer's in jeweler's findings, are five-sided, with sharp edges. As obtained they are hard-tempered and break readily, but when the temper is entirely drawn they are very pliable and can be tied in a knot without breaking. To render them soft and pliable, put a layer of fine asbestos fibre* on a piece of sheet iron; lay the broaches on this, spread out so as to avoid much contact, cover with another layer of asbestos and a plate of sheet iron over all. Heat for an hour or more; then allow the asbestos to become entirely cool.

Jas. G. Palmer, International Dental Jour.

* No. 305, sold by H. W. John, 100 William St., is well adapted to this purpose.

To Repair Broken Pin in Logan Crown.—File the portion remaining in the crown square across; invest as preferred, and solder to it another piece of platinum pin, using a low grade of solder to avoid raising to a high temperature. Fourteen K. is perfectly satisfactory. Pins that are too soft may be strengthened in this way.

P. G. Wood, Ohio Dental Journal.

Pulp Mummification in Deciduous Molars.—When a child presents itself with an aching deciduous molar with exposed pulp, destroy and remove pulp from chamber only, and fill the chamber with Soderberg's paste, filling cavity with oxyphosphate. You will find this a successful method.

O. E. Houghton, Items of Interest.

Swaged Cusps.—Press the plaster model of cusps into moldine and cast a cusp button of pure Watt's metal. When cool carbonize the surface by igniting a small piece of gum camphor, which deposits a beautiful layer of carbon. Run the counter die of Melatte's metal. Swage the gold into the counter die with lead and then use the button to bring out the fine lines.

H. J. Goslee, Dental Review.

"Extension for Prevention"—Extending the Cervical Wall Beneath the Gum.—The question is, first, whether we are justified in doing the cutting, and, secondly, whether the patient will submit to it. Again, the patient may think that, instead of practicing "extension for prevention," we are practicing extension for remuneration, and be dissatisfied.

S. H. Guilford, International Dental Journal.

Why Some Gold Fillings Become Loose.—When a gold filling is subjected to the impact of mastication for a time it will undoubtedly change its shape, so that the fillings in a good many teeth will become loose—not because they are improperly shaped, not because the tooth has been improperly filled, but because of the impact brought to bear upon the gold. In time it is forced from position by means of a change in its shape.

W. H. Trueman, International Dental Journal.

Application of the Rubber-dam.—Difficulty is often experienced in securing the rubber-dam over the cervical edge of cavities extending far below the gum, the gum margin assuming an irregular line while the ligature, whether silk or rubber, when taut, makes a straight line. The difficulty may be overcome by using binding wire, twisting the ends with pliers, and pushing it down into position with a blunt instrument. It will carry the rubber before it and maintain its shape in a most satisfactory manner. The wire may also be used for ordinary distal cavities, utilizing the twisted ends to hold the dam away from the back of the tooth.

W. M. Gabriel, Jour. Brit. Dental Ass'n.

Pulp Devitalization.—A caustic paste that is painless and anæsthetic:

R. Arsenous acid..... I.O.
Nirvanin I.O.

Robert Marcus, Dental Register.

To Separate Cast and Impression.—Drop the piece into hot water for a minute or two when they will separate without trouble, leaving the cast much smoother than if the impression was cut away. If desired another cast can be made from the same impression.

Dental Office and Laboratory.

To Lessen Pain from Arsenical Applications.—Having a free exposure of the pulp, mix equal parts of antipyrin and arsenic and apply. The antipyrin diminishes blood pressure and relieves congestion caused by the arsenic, thus diminishing pain.

Items of Interest.

Eucain B.—I make the solution in liquid vaselin by boiling. I have never had an abscess result when the solution has been thus prepared. I believe we get a more certain and profound anæsthesia with eucain B than with eucain A, and it is less irritating.

A. W. Harlan, Dental Reviewer.

The Articulation After Extraction.—I will present five hundred dollars to any one who will give me, from any source whatever, one single case where the articulation of the teeth is perfect after the loss of one single tooth.

E. A. Bogue, International Dental Jour.

Consideration for the Patient.—In using the chip-blower, patients sometimes sneeze from the inhalation of dust. The hand of the operator, habitually placed before the nostrils, palm outward, will obviate this, and will also prevent the access of bad odors to the patient's nose.

L. Van Orden, Pa. Med. Dental Gazette.

To Give a Smooth, Finished Surface to Vulcanite.—After investing in the flask, remove the wax absolutely and paint the palatal and lingual surfaces with a mixture of liquid glass and silver bronze. When hard, cover with soapsuds to prevent adhesion to the vulcanite. The case will come out smooth, with a glistening appearance.

(Trans.) B. J. Cigrand, Dental Digest.

Investment for Gold Casting in Bridge-work.—

Plaster of Paris..... 5 parts.
Plumbago 3 parts.
Asbestos (grade 3) 6 parts.
Soapstone (pulv.) 1 part.

This gives a good heat-resisting investment for a modeling compound model, for occlusal castings, cusp buttons, etc. The plumbago gives a fine surface to the casting.

Cephas Whitney, Items of Interest.

Painless Dentistry.—Dryness, keen, high-tempered, well-adapted instruments deftly handled contain more of promise, as far as safely minimizing pain is concerned, than all the medicaments of the pharmacopœ.

A. T. Bigelow, Items of Interest.

Antiseptic Varnish for Cavity Lining.—Dissolve copal in equal parts alcohol and chloroform; add equal volume hydro-naphthol. The product will be very adhesive and strongly antiseptic varnish, free from all caustic properties.

Dental Office and Laboratory.

The Disk in Finishing Fillings.—A proximal contour filling can be finished very rapidly by using a very thin disk, holding the finger against the back of the disk and giving a wiping motion, making the contour, instead of cutting it off as in the use of a thick, stiff disk, running straight without the wiping motion.

W. M. Megginson, Ohio Dental Journal.

Abscessed Deciduous Teeth.—Force oil of cloves through the sinus; then flood the cavity with a solution of gutta-percha in eucalyptol, and force slightly warmed temporary stopping into each canal until the eucalyptol appears at the opening of the fistula. Fill the cavity, and they will rarely give further trouble.

C. N. Johnson, National Dent. Association, 1899.

To Reduce Inflammation of Pulp Previous to Arsenical Application.—Apply peroxid of hydrogen to the pulp; then, on a wisp of cotton, take up as much as is convenient of bicarbonate of soda and place loosely in cavity, saturating with chloric ether. Protect the cotton as preferred. After this treatment the pulp is less liable to give pain from application of arsenic.

Dr. Williams, International Dental Journal.

Permanent Fillings in Young Teeth.—The pulps in young teeth have much more vitality before their function is completed than they have later, and consequently will tolerate metal fillings which are separated from them by only a thin layer of dentin better than they will after the normal formation of dentin is completed, the new formation rapidly interposes a non-conductor of natural origin.

F. B. Noyes, Dental Cosmos.

Antidote for Tincture of Aconite Root.—In a case of accidental poisoning, the patient having swallowed tincture of aconite with which the gum over the roots of a large molar was being painted, twenty drops of laudanum, the dose repeated after a few moments—with ammonia by inhalation—the patient being laid on the floor, brought him around all right in about thirty minutes. This antidote is not given in the books.

A. W. Harlan, Dental Review.

Miscellany.

Hungarian Punishment for Bigamy.—Bigamists in Hungary are compelled to submit to a queer punishment. The man who has been foolish enough to marry two wives is obliged by law to live with both of them in the same house.

Aconit Poisoning.—W. A. Potts, in the *Edinburgh Medical Journal*, reports the case of a man who swallowed half an ounce of liniment of aconit, and recovered under treatment with strychnin and whiskey.

Christian Science Did Not Save.—The faith in Christian Science of the family of Judge J. W. Eller, of Omaha, Neb., is being thoroughly tested. A gasoline stove exploded and burned several members of the family. Two "healers" were called in, who prayed at length. When the victims were being told they were not in pain the flesh was dropping from their bodies. Mrs. Eller died, but the other sufferers declared that if they could not be saved through prayer it was not worth while to call for physicians.

Conflict Over Evans' Museum.—Differences have arisen between the city of Philadelphia and the executors of the late Dr. Thomas W. Evans, who recently bequeathed to the city an estate valued at over \$3,500,000 to establish a free museum and dental institute. A series of protests have been filed by Dr. Evans' heirs to this disposition of his estate, and although rumors of an amicable settlement between all concerned are being bruited about, those qualified to know state that a lively legal fight must ensue before the matter is definitely settled by the courts.

Med. News.

No Cow's Milk in Japan.—In regard to the absence of cow's milk from Japan and its beneficial consequences Dr. A. S. Ashmead says: "One of the most striking features of that most curious of countries, Japan, is the singular scarcity of domestic animals. Horses and cattle are only seen in cities and on the road as pack animals. The cow in Japan is not wanted for her milk. Being an animal product, milk falls under the general condemnation which excludes everything that has pertained to a living body from the alimentation of man. Thus it happens that as Japan may not use cow's milk the Japanese mothers are compelled by stress of circumstances to suckle their babies themselves. Artificial lactation is altogether unknown. The children are suckled until their sixth year. The great reward which Japan reaps from this mysterious care of motherhood is the absence of rachitism. All observers have referred to the fact, and to the absence of rachitic pelvises. I think I am not wrong in saying that the chief and central source of these great sanitary blessings is the absence of cow's milk."

Medical Record.

Tincture of Iodin Stains.—To remove the stains of tincture of iodine from clothing, towels or napkins, immerse the parts stained in sweet milk and let it remain a short time; after which rinse with clear water. By this process every trace of iodine can be removed.

T. Lester Hale, D.D.S.

Copper in Peas.—William Elliff, grocer, Yarmouth, was summoned at the County Petty Sessions for selling preserved peas containing copper sulphate to the extent of half a grain of copper to the tin. The magistrates said that as it had been decided that copper was injurious to health, they had no option but to convict. Though defendant had not himself put the copper in the peas, still he was the person responsible under the act. Fined 1s., and 9s. 6d. costs.

Pharmaceutical Journal.

Student-rule.—The Faculty of the Jefferson Medical College has inaugurated a system of student-rule at this institution, similar to that prevailing at other institutions of learning, notably at Cornell, Princeton and Columbia Universities. In compliance with the desires of the Faculty, a Student's Committee has been formed, composed of the four class presidents and sixteen other members chosen to represent the different classes. To this committee the Faculty is to refer for adjustment all questions of disorderly conduct among the students, questions of damage to college property, and other infractions of the rules.

Med. News.

Sir Thomas Browne.—The proposed erection of a statue to Sir Thomas Browne, author of the famous "Religio Medici," in his native town of Norwich, has called attention to the fact that his skull now occupies a place of honor in the Norwich Hospital Museum, where the writer had an opportunity of examining it a short time ago. It is of a beautiful, well-balanced dolichocephalic type, now recognized by ethnologists as that of the highest races, rather low in the frontal, but very broad and full in the parietal and occipital regions. His grave was opened by accident while repairing the foundations of the church in 1840, and his skull and coffin-plate, with rather irreverent enterprise, were secured by the museum. So well preserved were his remains that the hair was nearly perfect, and of a bright red-brown color, closely corresponding to the descriptions given in his biographies. The gentle Sir Thomas, in spite of his shrewd and scientific turn of mind, evidently shared one of the pleasing delusions of his age, for the quaint Latin inscription on his coffin-plate states that the casket is filled with a powder "corporis Spagyrici"—whatever that may be—which will turn its leaden shell into gold, though what satisfaction he expected to get from such a post-mortem triumph puzzles one to imagine, unless he expected to wear it as a sort of "golden slipper" on Resurrection Day.

Medical News.

Nitrous Oxid and Ether by the Open Method.—A. H. Miller, in *Annals of Surgery*, advocates the commencement of anæsthesia with nitrous oxid, and, as soon as anæsthesia is complete, the removal of the inhaler and the substitution of the ether cone. He has notes of one hundred and sixty cases in which no one has been conscious when the change was made, or has experienced any thing disagreeable from the anæsthetic. The average time required in his cases for anæsthesia has been 3.05 minutes.

Haemostatic Anaesthetic Solution.—A solution which combines the hæmostatic properties of gelatin with the anæsthetic action of cocain and eucain is prepared by A. Legrand as follows: Pure gelatin, 2 gm.; pure sodium chlorid, 70 centigrammes; eucain B-hydrochlorid, 70 centigrammes; cocain hydrochlorid, 30 centigrammes; pure phenol, 10 centigrammes; distilled water to produce 100 C.c. The preparation is poured while warm into sterilized tubes; when cold it sets to a jelly, which liquefies again at 20° to 25° C., and may in this state be used for injection. It has been found to give excellent results in dental practice, producing good anæsthesia and preventing hemorrhage.

Nowv. Rem.

The Liverpool Malaria Commission Returns.—The steamer "Fantee" from Lagos has recently touched at Plymouth, England, with Major Ross and the other members of the Liverpool Malaria Commission on board. Dr. Ross speaks most hopefully of the prospects for complete extermination of anopheles. It has been found to be a shy and fastidious breeder, using only those pools and puddles which are permanent in character, whereas culex will breed in any rain puddle, barrel, or even sardine-tin which remains full of water for a few weeks. And as neither of these pests can breed successfully in pools or streams large enough to be stocked with minnows or into which fish can even penetrate at high-water, their larvæ being the favorite food of these useful little "shiners," the anopheles pools are both limited in number and can be picked out in any given area with comparative ease. Still another requisite must be present, and that is a free growth of algæ as the larvæ feed chiefly upon these in this intermediate stage of their development. By an interesting and, for everybody but the victim, most fortunate accident, one member of the party slept a single night without mosquito curtains and promptly developed a sharp attack of malaria in consequence, while not another individual was attacked. This is confirmatory of the experience of Grassi, as previously described in our columns. It will be remembered that Grassi, together with a young couple with five children, slept with open windows for eight nights during the dangerous season in the Roman Campagna, protecting themselves with fine mosquito netting, and none of them was infected with malaria.

Medical News.

No Indian Lunatics.—Commissioner William A. Jones, after careful study of the subject, has come to the conclusion that “a full blooded Indian lunatic never lived.” He holds that insanity was not known to the red man until he began mixing with the whites.

Necrosis from Local Anaesthetic.—At a meeting of the Scottish Branch of the British Dental Association held November 24th, 1899, Mr. W. D. Anderson gave a short account of a case of “Necrosis of the External Alveolar Plate, Due to the Injection of a Local Anæsthetic.” This was very interesting, as showing the danger of experimenting with preparations of unknown formulæ. Mr. Anderson had fortunately, perhaps, elected to try the effect on himself, and though he had to record considerable suffering and discomfort extending over some eight months, he stated that except for a very slight looseness the teeth affected were now quite comfortable. The condition of the syringe used was above suspicion. *Jour. British Dental Asso.*

Climate of the Philippines.—By some writers, and of course by a certain school of American politicians, the Philippines have been described as excessively unhealthy—a sort of eastern Bight of Benin, with the addition of constant earthquakes, periodic typhoons, and occasional epidemics of cholera. It is a common cry, familiar enough to Englishmen; but America need not be afraid that her new possessions will prove a white man’s grave. Professor Worcester, it is true, complains much of the climate in his book, but in spite of his wide experience he does not appear—if he will pardon this expression of our opinion—to have acquired the rudiments of the art of travel. Without European food, without even flour, living on rice, oats, or anything he could find, often with no servants and insufficient means of protection against the weather, he naturally undermined his health and undoubtedly came very near his death from a severe attack of typhoid. It is not too much to say that similar exposure in a European climate would probably have been fatal. Mr. Foreman, undoubtedly one of the best authorities, gives it as his opinion that the climate of Luzon is excellent. Mr. Stevens describes the climate of Manila as much better than that of Hong Kong. Perhaps the best proof of these statements lies in the comparatively light mortality among the American troops in the present campaign. Beri-beri and cholera rarely attacks Europeans, and the type of malaria fever is not a severe one. On the whole, for tropical islands they may be considered unusually healthy; less healthy, no doubt, than the islets of the Pacific, but far healthier than Borneo or New Guinea.

English Quarterly Review.

Allows a Big Dentist's Bill.—In view of the character of some of the communications published in the columns of the *Journal*, with regard to the reluctance of a former probate judge of Cook county to allow proper claims for medical attendance, it is of double interest to note that the present acting judge of the court is reported to have just allowed a claim of \$1,605, against the estate of the late George M. Pullman, palace car magnate, for dentistry. The account is said to run from 1893, and to be made out of charges aggregating \$1,161 for work done for Mr. Pullman, and \$444 for work, etc., for one of his sons. The dentist charged \$10 an hour for his services. In September, 1895, the account was swelled \$275. The largest charge for a single day during that month was \$60; the smallest, \$20. On the son's account, \$25 was charged two occasions for "lost time." One item was \$250 for "regulating" the teeth and gums.

Jour. Amer. Med. Asso.

Sulphurous Acid as a Preservative.—Referring to the use of sulphurous acid and its compounds for preserving meat and meat preparations, Dr. Bernhard Fischer, Director of the Municipal Laboratory of Breslau, in his annual report remarks that the maximum amount of sulphur dioxid to be allowed is fixed at 0.1 per cent., and that this limit was laid down in 1894 upon medical authority. The researches of Kionha demonstrated that sulphurous acid is not to be regarded as an innocuous substance for food preservation, inasmuch as it acts as a blood poison. Relatively small quantities may be injurious to the human organism, in that it induces bleeding from the capillaries. Dr. Jakobi laid it down that the amount of sulphurous acid must not be allowed to exceed 0.06 per cent., which corresponds to an addition of $\frac{1}{2}$ gm. of crystallized sodium sulphite to 1 pound of meat.

British Food Journal.

The Color of Water.—Professor Spring reports on his experiments of many years to explain the color of the water. He has come to the conclusion that a pure blue is the natural color of water, for when we look through a long tube filled with distilled water against a brilliant white surface, a pure blue is seen, such as shown by the lake of Geneva in quiet weather, a color which is not influenced by superficial or interior reflection. When pure water becomes slightly turbid by extremely finely divided white or colorless particles floating therein, they reflect even in the case of ground mountain crystal a yellow light, which unites with the natural blue into a brilliant green color, such as is exhibited by the Neuenburg and Boden lakes. The peculiar fact established by various observers that the water of ordinarily green lakes turns perfectly colorless at times is not due to a clarification, but, on the contrary, to an influx of a reddish mud, colored by ferric oxid, which completely neutralizes the green.

An Attractive Nurse.—A soldier "at the front," referring to the fact that many of the women army nurses are young and good looking, writes: "The nurse attending me was a distractingly handsome girl with a pure Greek profile, reddish-brown hair—the kind that seems full of little golden tendrils in the sunlight—and eyes as liquid as a fawn's. The first time she put her finger on my wrist my pulse ran up to at least 175, and she took it for granted that I had a high fever and dosed me accordingly, I tried repeatedly to lure her into conversation, but she wouldn't be lured. She was strictly business. When I started to pay her compliments she would ask me to put out my tongue, which was an insurmountable obstacle to conversation. I used to lie there with my tongue hanging out trying to put my whole soul into my eyes, but it was no go. No man can look romantic with half a foot of furry red tongue protruding from his countenance. Another way she had of gagging me was by putting the thermometer in my mouth. The last week I proposed to her five times, or, rather, I tried to, but she invariably choked off my declarations by thrusting a thermometer into my mouth. I got so excited one time that I came near swallowing a thermometer worth several dollars. She was a most excellent young woman, and had lots of sound common sense, as was evidenced by the fact that she gave me no encouragement whatever."

Army and Navy Journal.

Degeneracy of Pitcairn Islanders.—One of the principal examples quoted in favor of the innocuousness of consanguineous marriages has been the little community of Pitcairn islanders, descendants of a few surviving mutineers of the British ship *Bounty*, and a dozen or so Tahitian women. Notwithstanding the fact that their original stock could hardly be called good, that they were all closely related, and that intermarriage must, therefore, have been very close among them, they have been always described as splendid specimens of the race, physically, morally and mentally. Quite recently, however, a totally different account of this isolated community has been given. Mr. Hamilton Hunter, who visited the islands in the official capacity of commissioner, on the British ship of war *Comus*, reports that he found the islanders "lax in morals, weak in intellect, lazy and rapidly degenerating," and this, it is said, is also the verdict of the British naval officers who accompanied him. Pitcairn Island is well off the ordinary ocean routes and is only rarely visited, even by whalers and traders. It has no harbor and its residents have little chance of corruption by outsiders; its degeneracy, therefore, may be presumed to be inherent or self-caused. The fact that it exists spoils a neat illustration and argument against the evil effects of close interbreeding in the human species.—*Med. News.*

THE DENTAL BRIEF.

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NO. 3

ORIGINAL COMMUNICATIONS.

CARVING OF BLOCK TEETH.

By F. A. Coney, D.D.S.

Carved blocks have the merit of being the most natural looking, and at the same time, when well mounted, the strongest artificial teeth made. When the best results are desired, and neither time nor cost need be considered, carved blocks are the best recourse of the dentist.

It is here that the carver has an opportunity to carry out his conception of any very difficult and peculiar case. The teeth can be placed in any position or inclined at any angle deemed desirable. A close observer will discover wherein lies the difference between carved blocks and molded blocks; the natural expression of the former is seen in those bolder curves and contours made by the skilful hand, which it is impossible to produce from molds. The following is a description in detail of the carving process in general use, from about the year 1850 to the present time:

The first step is to get a perfect impression and bite. The simplest and shortest method for small partial cases, say, of two, four or six teeth, is the following: Take a roll of bees' wax from one to two inches long, according to the number of missing teeth, and about three-fourths of an inch thick; or modeling compound may be used, and is, I think, preferable. Soften in hot water, dry upon a towel, and bend into a semi-circle; press it against the teeth on each side of the space or spaces requiring substitutes; then direct the patient to bite through the wax until the cutting edge and cusps touch and occlude naturally; then, after pressing the wax or modeling compound against the labial

or buccal surfaces of the teeth, carefully remove it from the mouth, and harden it in cold water.

For the cast mix plaster quite thin; first fill the imprints of the teeth in the wax or modeling compound carefully, working the plaster into them; as the plaster stiffens, build it up and extend it back over the palatal surface and about one and a half or two inches beyond the impression, to give a sufficient length and thickness to the model. Trim it to the desired shape to handle conveniently, and varnish with sandarac or shellac the plaster exposed to view; then oil the model and bite with sweet oil.

Next run the articulating model in plaster, and when the plaster has set put the model in hot water to soften the wax or modeling compound. When soft, part the articulator from the cast, and the model is ready for the next step, which is to enlarge in the cast the space for which the block is to be made. If the block is to have two teeth, cut from the proximate surface of each plaster tooth, on either side of the space to be filled, about one thirty-second of an inch; this is to allow for the shrinkage of the block in fusing.

For a block of four teeth, proceed in the same manner as for a block of two, with the exception that one-sixteenth of an inch is taken from the proximate surface of each plaster tooth, thus allowing for a greater shrinkage. For a block of six teeth, a proportionately still greater shrinkage is of course allowed for. Fig. 1 shows the model thus prepared for a block of six teeth.

The cast being ready, prepare some spermaceti by melting in a small tin cup over a spirit lamp, adding enough vermilion to color it a cherry red. With this mixture, using a camel's-hair brush, paint that surface of the model to which the material for the tooth is to be molded. Apply with a camel's-hair brush sweet oil to the antagonizing model or bite, so that it will separate from the body without disturbing it. The cast and bite are then ready for the body.

I use a body made from the formula of Dr. Lukens, and prepared by the S. S. White Dental Manufacturing Co. It is very strong and fuses at a high heat. This body should be mixed in a porcelain bowl or wedgewood mortar, adding to it sufficient water to make it the consistency of putty; it is then ready to be packed or worked into position on the model. This should be done with care, to make the mass homogenous and free from air

bubbles. When sufficient body has been packed in place, absorb the surplus moisture by means of a dry napkin until the body becomes dry and firm. It is then ready for carving.

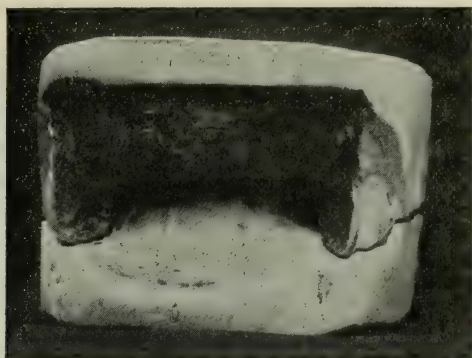


Fig. 1.

Fig. 1. Model prepared for a block of six teeth. The articulating model trimmed to the proper contour is in position.

The carving instruments required are simple and few in number; a string bow, carving knives of different shapes, dividers, a bone spatula, pin tweezers, and camel's-hair pencils make up the outfit.

Before commencing the carving process, the contour of the block must be formed and the size and shape of the teeth decided upon. The perfect form of the teeth should be in the mind's eye of the carver. The desired width and length of the teeth is marked off on the block, beginning at the central or median line, with the straight carving knife, and by cutting an inverted V-shaped space between the teeth. These should incline toward the center equally on both sides. The necks are formed by a shallow semicircular groove.

The model is then reversed, and the gum festoons are carved to the desired shape. If needed, additional body may be added to each tooth to bring it to the desired shape and size. (See Figs. 2 and 3.) The gum is then trimmed to the desired dimensions as to width, length and thickness, and is so shaped as to produce a natural effect when the gum enamel is applied.

The palatine surface of each tooth must be carved so as to antagonize correctly with the opposing teeth. A recess is usually made in the block for the pins, which are placed in holes of suit-

able size drilled in the body, some of which, in a semi-fluid state, must be worked in around them to secure them in position.

A detail of some difficulty is the removal of the block from the model. To do this, heat the block over the flame of an alcohol lamp, a large one preferred, until the spermaceti coating on the

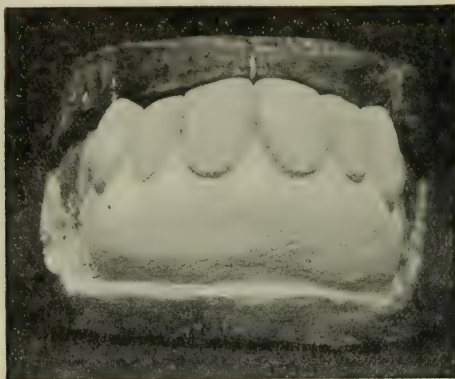


Fig. 2.

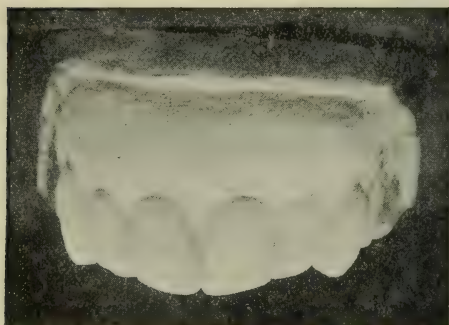


Fig. 3.

Figs. 2 and 3. Block carved ready for biscuiting. The teeth are sufficiently enlarged to allow for their shrinkage in the final baking to the size seen in the finished block, Fig. 4. In Fig. 2 the combined articulation and contour guide is removed.

cast beneath the block is melted. The greater part of the spermaceti will be absorbed by the block, which will then be loose on the model, from which it should be carefully dropped on a cushion of raw cotton. To do this safely, hold the model as close as possible to the cotton, so that it shall not have too great a fall.

While the block is cooling, which takes about five minutes, take a fire-clay slide and put on it a sufficient amount of kaolin to form a bed on which the block can rest during the biscuiting process. This bed should be about one inch in thickness, and in other dimensions correspond to the size of the block. After cooling, pick up the block with the thumb and forefinger, and place it with the palatine surface or pin side on the kaolin. Then make from the body half a dozen cone-shaped pieces about one inch high. These are to be used as trial pieces.

The block is now ready for biscuiting. Biscuiting is the hardening or partial vitrification of the block in a red hot muffle. The furnace best adapted for biscuiting and baking is the two-muffled furnace, obtainable at any of the dental depots. Kindling-wood is first placed in the furnace; then the slide carrying the block is put in the back part of the lower muffle, the door of which should be left open for the escape of the smoke which arises from the spermaceti and oil which has been absorbed by the block. Ignite the wood, and put on sufficient coal or coke to fill the furnace. When well heated, the block will become black, owing to the carbonization of the fatty matter it has absorbed; but as the heat increases the muffle becomes red; the carbon will undergo combustion, and the block will resume its former shade. At this stage close the muffle door, and wait until the muffle comes to a bright red heat; then take out a trial piece, and with a penknife test it for hardness, which should be about that of pipe-clay. If the test piece is found sufficiently hardened, remove the slide from the muffle. Check the fire by removing the stoppers on the sides and top of furnace and partially shutting off the draught. When the block is cool, remove it from the slide, brush off the kaolin and transfer it to the model. It is then ready for enameling.

Enamels are technically termed neck, point, stain and gum enamel. Enamels are applied to the block with a camel's-hair pencils. They should be mixed with clean water in a small glass or porcelain cup, making a cream-like mixture. The neck enamel is applied first at the necks of the teeth and then extended half way to the cutting edge or point. The neck enamels vary in color from light yellow to dark brown.

The point enamel is next applied to the cutting edges of the teeth, and is brought down over the neck enamel so as to overlap

and thus produce a graded blending of their respective shades. In color the point enamels vary from white to different tints of blue, gray and yellow.

The gum enamel is applied to the points between the teeth with the carving knife; elsewhere it is applied with a camel's-hair pencil. Care should be taken to place the gum enamel close to the necks of the teeth, but not to overlap the neck enamels. It is best not to make the gum enamel very smooth; it fuses at a little lower heat than the point and neck enamels, and unless left somewhat roughened is apt to become glassy in appearance. The festoons around the necks of the teeth should be ridged, so as to give a certain prominence and individuality of effect. The teeth should look as though they had grown out of the gum; and to secure this result, nature's outlines and contour must be studied and reproduced. Many blocks are ruined by having the gum enamel applied in such a manner as to produce entirely unnatural and inartistic effects.

After the enameling is completed, the block is ready to be transferred to the slide for its final burning. Prepare the slide as directed for biscuiting, with this exception—instead of placing the block pin side down on the kaolin, place it with the cutting edges of the teeth upward. Enamel the biscuited trial pieces at the points with gum enamel and place them on the slide in front of the block.

All being ready for the final baking, place in the furnace the side stoppers, and fill the furnace with fresh coal; then put in the upper stoppers. Seal all openings around the stoppers with a mortar-like mass of fire-clay mixed with water. When the lower muffle is at a white heat, the slide is securely grasped with a pair of long tongs with ends flattened for this purpose. The slide is lifted and held before the muffle for about two or three minutes, or until the block is thoroughly dry, and then is placed in the forepart of the lower muffle and gradually moved toward the back part of the muffle. When the baking part is reached, which can be distinguished by the intense glow or white heat, close the muffle door for about ten minutes; then with the tongs take out a trial piece, being careful to close the muffle door. Examine the trial piece, to see if it is fused or glazed; if not, bake about three minutes longer. Take out another trial piece, and if it is sufficiently fused and glazed the block is done.

Draw the slide from the lower muffle and pass it quickly into the back part of the upper muffle. Close up the muffle with the stopper, and close all openings with fire-clay. Draw the fire, and let the block remain in the annealing or cooling muffle until cold. When cold, the block is ready for grinding, a process which, owing to warpage, is necessary with all porcelain teeth, whether carved or molded. For fitting the block, the original cast having been trimmed for shrinkage, a new impression and cast are necessary. For the grinding use corundum wheels and points. To facilitate fitting, the prominent parts of the cast are coated with

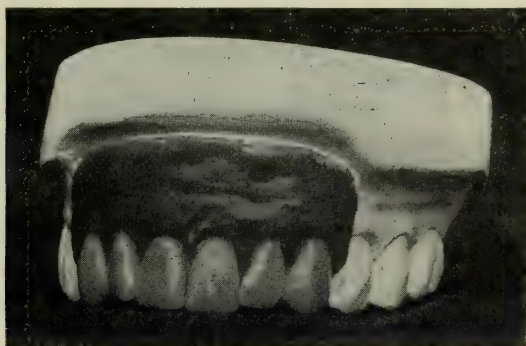


Fig. 4.

Fig. 4. Finished block fitted to position on the model.

a mixture of vermilion and olive oil, which will spot the under side of the block and show the exact place to be ground off in order to make the block fit solidly on the cast. After proper fitting, the block is ready to be mounted upon any base selected for the case. (See Fig. 3.)

In baking porcelain blocks, various furnaces can be used. The two-muffle furnace, mentioned above, is used by the writer for baking all large pieces. For small pieces of porcelain work the electric, oil, and gas furnaces are convenient and efficient.



MODERN DENTAL ABSORBENTS AND THE "OLD RELIABLE" RUBBER-DAM.

Some points in the uses, merits and abuses of each.

By B. G. Simmons, D.D.S.

"Many persons might have attained to wisdom had they not assumed that they already possessed it."—*Seneca*.

To "keep in step" in modern dentistry it is necessary to be fairly familiar with all modern improvements. Many of the articles and appliances to which our attention is called, upon investigation prove to be but slight improvements on older methods, some are absolutely worthless, and are so recognized and avoided in the first place; others are tried and soon cast aside. A few prove to be practical improvements that hold their place in the onward march of progressive dentistry. The writer distinctly remembers when the rubber-dam first came into use. A little slowly at first, particularly with those whose hobby was soft foil, then there was a mad rush to the extreme, with many operators absolutely discarding all other methods of keeping the work dry. The rubber-dam has undoubtedly been the most useful of any one appliance in operative dentistry. It enables us to do work that it would be impossible to accomplish in any other way, yet its use may be abused. At one period, and that not many years ago, it was not an uncommon thing to hear the statement made, "I never put in a filling of any kind without the rubber-dam." One would rarely, if ever, hear that statement made to-day. The reaction came, and we have now settled down to that happy medium which, though fully recognizing the absolute necessity of the rubber-dam, does not hold it as all supreme by any means. There have been some very great improvements in the way of dental absorbents since the days when the rubber-dam supplanted our old "birds'-eye-linen" napkins that we used to put into the wash along with the rest of the soiled clothes. Not a nice thing to do, I now admit, but we thought they were clean in those days.

Cottonoid, a felted absorbent cotton, has been invented, and a most useful general absorbent it is. Aside from being an improvement for all purposes where bibulous paper was formerly used, it is a most satisfactory substitute for the napkin and is far more absorbent. Cotton rolls, both absorbent and non-absorbent, have been suggested and made in several different styles, and aseptic napkins of sterilized absorbent cotton cloth, to be

used but once and thrown away, have come into very general use. The latter, though vastly cleaner and preferable from the standpoint of neatness, which is no small item in the patient's estimation, may not give any better results than the old linen napkin. Cottonoid is probably the most largely used of any dental absorbent and will continue to be, but it is my purpose here to speak more particularly of cotton dental rolls. It is not only that they are all ready to use, that of course is a great advantage, but you can put in fillings and keep your work dry with them that you would be unable to do with any other absorbent. Their absorbent bulk is so much greater and their adaptability so superior, that the older manner of using the napkin cannot be compared with them. There are many different ways of using them. They may be applied so that the operator will have both hands free for work, either by using a section of a roll, held in place by a wire clamp on either side of the tooth to be operated upon, or a rubber-dam clamp may be used and a long roll bent around the tooth and held down by the bulge of the clamp. In some cases it is advantageous to bend a roll like a horse shoe around the entire outside of the arch or in under the tongue. Up to this point I have been speaking of absorbent rolls. When it comes to non-absorbent rolls, I would be even more at a loss to know how to get along without them. The point about a non-absorbent roll is right here. It is not only that it can be frequently used as a substitute for the rubber-dam with far less trouble and vexation, but it can be used in cases where it is impossible to use the rubber-dam. Take a case of setting a crown for example. The dam cannot be applied, but you must have the point of operation dry. If you use an absorbent of any kind at this point, it becomes loaded with saliva to flow over your work at the slightest pressure. By using a section of a non-absorbent roll on either side of the point of operation you have a perfect dam, and instead of conducting moisture to this point, you keep the work dry and the roll itself is dry.

In connection with this I use either the saliva ejector or an absorbent of some kind that can be changed when necessary, back of the non-absorbent roll. It will be seen at a glance that the non-absorbent roll is simply a pliable and easily adapted dam against moisture; that the saliva must be disposed of by other means, and that it is not used in the same manner as the absorbent roll. The saving of time and labor in the use of these aseptic dental ab-

sorbents is a very important feature. They are all ready to use, and in many cases one may successfully complete an operation in about the time that it would take to apply the dam. In addition to this they are clean, and the patient realizes that they are clean. The rubber-dam, unless a new piece is used each time, does not impress the patient as being clean, and if there are a number of groups of holes artistically scattered about in it, it is apt to start a train of thought not exactly pleasant. It probably can be washed clean, but is it? This the patient cannot know. Probably the reader always uses a new piece of rubber-dam, but you know very well that the "man on the floor above," or "across the hall," or a "block down the street" does not always do the same, and it is to him that I am speaking at the moment. The writer heard one who stands high with his fellow practitioners in the dental profession in New York make the statement to a group of dentists recently, that in his opinion "the time had come when the dentist should give as much attention to asepsis—the aseptic condition of instruments—and the use of aseptic absorbents and appliances about the mouth, as did the general surgeon in any case in surgery. Although the immediate success of the operation might not always require it to the same extent, the result of carelessness in this respect through contagion and disease might be quite as serious," and this opinion was concurred in by all present. He said "we not only cannot have things too clean, but we cannot be too careful to have this cleanliness apparent to the patient;" and in the latter remark, though perhaps unintentionally, he showed a clear idea of the business side of the proposition.

Aside from extreme cleanliness being required for other reasons, we know too much of germ life and contagion at the present day to use anything in mouth after mouth except that which is absolutely necessary, as in the case of instruments. Fortunately the latter can be thoroughly sterilized. Let me suggest here how the value of boiling water as a sterilizer is forgotten by many in the search for something more difficult. 'Tis a simple thing to immerse a handful of instruments half way up the handles in boiling water for a few moments and quickly dry them, yet as a usual thing this is all that is necessary. Steel can be safely and easily cleaned. This is neither so sure nor easy with rubber-dam, and my advice is, use new each time. When it comes to absorbents there is no argument for anything but aseptic absorbent. Their use entails no greater expense than washing napkins, but if it

were five times as great, I would still advocate it, and, if necessary, curtail expenses somewhere besides where cleanliness entered into the question. But as a fact their use pays. Nothing could please the patient's sense of cleanliness more than to see the neat boxes containing these preparations in the operating case instead of the pile of ragged-edged, "medicine-stained" napkins that have been in all kinds of mouths before, and are just back from a wash of "questionable character." I think great credit is due the firm that introduced these aseptic dental absorbents, and though it may be considered out of place by some in this kind of an article, yet I propose speaking of them here.

These preparations were suggested at different times by leading dentists of the country; and their manufacture at the suggestion of these dentists was taken up by one of the largest and probably best known firms manufacturing absorbent cotton, surgical dressings and aseptic preparations. When a firm originates and introduces a certain line of preparations and attains as well-nigh perfection in those preparations as it seems possible to attain, I see no harm in mentioning the fact. Such is the case with Messrs. Johnson & Johnson, of New Brunswick, N. J., in the manufacture of Red Cross Aseptic Dental Absorbents, and I am glad to be able to do my mite toward placing credit where credit is due. However, this is not my only object in using their name here. It is quite as much because I find it necessary in properly describing certain qualities in some of the absorbents that I have alluded to. Without wishing to do injury to anyone, I find certain preferable qualities in this make that I do not find elsewhere. This is particularly noticeable in cotton rolls. Some cotton rolls are really worthless, because of being too stiff and harsh. They must be soft and adaptable. There have been some rolls imported from Germany (a strange fact) that were sufficiently pliable, but this point was gained at the expense of absorbent bulk, and to me they were not nearly as satisfactory. Of cottonoid I believe there is but one kind, and in aseptic napkins there really may not be any great preference as to make, yet to me the dependence to be placed on thorough asepsis and also the hinge-top boxes are no small consideration. One is enabled to open them and get what he wants with one hand when the other is necessarily kept at the patient's mouth. In closing let me say that I am at least thoroughly conscientious in my views on this subject, and what I have learned has been by no short experience.

ABSTRACTS AND SELECTIONS.

TREATMENT OF CHILDREN'S TEETH.

C. Edmund Kells, Jr., D.D.S., New Orleans, La.

A five-minute paper upon such a prolific subject must of necessity be concise, hence to the practical treatment of the temporary teeth at once.

These will be divided, from a clinical standpoint, into classes: A, good; B, bad; C, very bad.

Class A.—Good teeth, of course, are those to which, profiting by our teachings, the mother has given good care and the little patient brought to us at an early age, say two and a half years. At this period the teeth are in perfect order, clean, and pleasing in appearance.

The patient is examined every three or four months, and from time to time a spot of decay may appear in the crowns of the molars, which is filled at once with amalgam, however tiny the cavity may be. At the same time, whenever necessary, all the exposed surfaces are polished with orange-wood and pumice, or the engine and a rubber cup may be used. The approximal surfaces are also kept bright by pumice and floss silk.

The incisors, under this care, remain perfect until shed.

The treatment these teeth receive is mostly preventive, and the time (and money) so spent is well invested.

Class B.—These patients are brought to us probably after a night of suffering, and say at five years of age, and bespeak at once the neglect they have endured with compound approximal cavities in the molars, pulps nearly or quite exposed, and perhaps an abscess in progress of formation. The incisors also may be involved. The patient is not a type of good health, but nervous and afraid of everything in the office, ourselves included.

The first step to be taken is to gain the child's confidence, which can only be accomplished by inflicting no pain at the first visit. Some small crown cavity (usually to be found) is slightly prepared and filled with cement, and the patient is greatly encouraged by the idea of having a tooth filled without pain. By the time all of the other work is completed this filling (?) is to be removed, the cavity properly prepared and filled with amalgam.

The large compound approximal cavities are in due time prepared as thoroughly as possible, care being taken not to expose the pulps; they are cauterized one or more times with silver nitrate, filled with amalgam if safe, or, if not, with a chlorid of zinc cement. If all progresses smoothly, at the end of six months or a year they may be refilled with amalgam.

Sometimes, when the teeth are crowded, after cauterization, gutta-percha is packed into two facing compound approximal cavities and allowed to remain for a month or more, when a filling can be more satisfactorily inserted.

If the pulps are exposed after the use of the silver nitrate, a cream of oxid of zinc and creosote is flowed over the exposed portion previous to the insertion of the filling.

These pulps, if thoroughly exposed will die, but probably painlessly, and the tooth may remain comfortable for some time.

Any tooth in this condition at the age of five will not survive its period of usefulness, but must be lost sooner. However, if the second molars can be held in place at almost any cost, until the first permanent molars have come through and are well articulated, this should be done, after which their loss is not so serious.

It is not my practice to fill the root-canals of temporary teeth, consequently the treatment of these teeth is merely palliative; when that fails to give relief, extraction is resorted to.

Class C.—Under this we will describe a poor little sufferer of two and a half years of age, with all the teeth “rotted to the gums,” as we are told, and which description is in fact more accurate than elegant. True enough, the crowns are gone, but in many the pulps are still alive and exquisitely sensitive. Here nothing can equal the cauterization by silver nitrate, which, repeated at intervals, will allay the sensitiveness, and is all that can be done for the little sufferer.

When a girl who has been under my care since childhood marries, she is impressed with the necessity of caring for her children's teeth. She is taught to brush, not rub with a rag, the infant's teeth from the time of their first appearance; at first with clear water, and later, when the child is old enough not to attempt to swallow everything that is put in its mouth, with prepared chalk. Floss silk should also be passed between them daily, and when the child is old enough the mouth should be thoroughly rinsed with diluted lime-water night and morning. This consti-

tutes the care the mother is instructed to give the temporary teeth, besides which they should be sent to me for an examination three times annually.

The Permanent Set.—The judicious treatment of the first permanent molars is of paramount importance. In my practice there is a tendency to crowded arches, and very frequently the extraction of four teeth becomes advisable.

If the first permanent molars erupt in a defective condition, which they very frequently do, and break down immediately, they are nursed along until the patient reaches the age of eleven and then extracted. Removing them at this age leaves the twenty anterior teeth for mastication, and allows of the eruption of the second molars in a perpendicular position and almost in the places of the first molars. Meanwhile the bicuspid's have dropped back a little, and the entire arch at the age of fifteen is roomy and in good condition.

If the first molars are removed after the appearance of the second molars, these are sure to tip forward more or less, and the crowded condition of the anterior teeth is not so readily overcome, and, altogether, a bad result is sure to obtain.

For nearly twenty years the judicious extraction of the first permanent molars has been practiced by me, and the satisfactory result so obtained is a daily object-lesson among those patients who are still in my care.

When the first molars are good, one set of the bicuspid's, either the first or second, are oftentimes removed with the best results.

As the teeth of the permanent set are erupted they are watched carefully, at least two visits a year being insisted upon. The smallest pits that penetrate through the enamel are filled at once. If these occur before the teeth are fully erupted, they are filled with oxychlorid of zinc first, and later with amalgam or gold. If the teeth are soft, gold is never used. Amalgam is a very satisfactory material for the fissures of bicuspid's of children.

Sometimes these buccal and fissure cavities are quite deep, though the enamel-margins are quite hard; in which cases the cavities are lined with either gutta-percha or cement, usually the latter, and gold or amalgam completes the filling.

When all is ready for the filling the cavity is swabbed out with creosote (Morson's only), and then dried with hot air. This will leave the walls in a glistening condition; and if any spot of

decay or softened tissue remains will at once discolor it, and it is removed.

When very deep cavities are found, the enamel-borders are prepared thoroughly, but the decay over the pulp is not entirely removed for fear of exposing the same. This is coated with a cream of oxid of zinc mixed with creosote, and dried and covered with oxychlorid. Later a part of the cement is cut out, and amalgam or gold packed over the remaining protecting layer.

The oxychlorid of zinc is a treatment of the tooth under which the tooth will improve. The zinc phosphate is a filling material only, porous to a certain extent, and does not benefit the tooth otherwise than serving as a filling material.

The approximal surfaces are watched carefully, and upon the slightest suspicion the teeth are wedged apart and the discoloration removed with fine polishing strips; after which the surfaces are brought to a high polish by the use of lamp-wick carrying moistened pumice. A carrier for this purpose devised by my father some thirty or more years ago I have never seen equaled, so I present one for your inspection.

Approximal cavities in children under fifteen years of age are never filled with gold, but with oxychlorid of zinc. Usually the dam is applied, the fillings inserted, patient seated in another room with a book or magazine for from forty-five to sixty minutes, the mean time being employed on other patients, and so is not wasted. The cement is then carefully finished, and paraffin burnished on with a hot instrument.

It is not unusual to find at the age of twelve or thirteen years cavities on the approximal surfaces of all the lower incisors, and even cuspids. Experience and observation have taught me long since that gold will not save such teeth at all, while the above treatment will. I have during this past month filled such teeth with gold for a miss of nineteen years, for whom they were filled with cement in May, 1888, or ten years ago, the cement fillings having wasted but slightly during all this time, and the teeth in the best of condition.

It is essential that a child be taught how to brush the teeth properly, and for this purpose I keep in my cabinet a tooth-brush and set of teeth mounted on continuous gum, and with which I give a careful object-lesson.

Finally, when all other work is completed, the teeth are thor-

oroughly cleansed and polished, and great stress laid upon the necessity for the patient's keeping them in that condition.

I am told that the teeth of children in this section will not stand the same treatment as those in the North. Of this I know nothing personally, but of the utter failure of gold in children's teeth I do not judge by my own work alone. Scores of my little patients go off to school, and have gold fillings inserted by operators of the best reputations, which, however, soon fail. So my hearers of a distant clime must please bear climatic considerations in mind when criticising my methods, and also my work when it falls under their view.

Dental Cosmos.

ANCIENT JAPANESE DENTAL ART.*

By T. A. Long, Philadelphia, Pa.

It is but a few years since the Japanese have been brought to our notice in the arts and sciences, although they, as a nation, are very much older than we, and in the dental art antedate us by more than a century. We find examples of their skill in artificial plates, older than this nation—made before the discovery of America. In this work we find rare skill displayed, and an amount of patience expended that seems marvelous.

When we consider the crude materials and tools with which they had to work, and consider the outcome of their patient labor, we must acknowledge the bright intellect that produces such exquisite results.

There is an old story to the effect that the king, to show the great skill of his people in the arts, sent to the ruler of another country a fine cambric needle as a sample of their fine workmanship. This needle was returned to the sender with an eye drilled through the point, into which was inserted another finer needle, showing the superior workmanship of the people to whom the original was sent.

We have almost a similar example before us in the collection of Japanese artificial plates on exhibition here, in a case of a celluloid plate mounted with human teeth. This Japanese student, educated at one of our colleges, was taught to make celluloid plates mounted with porcelain teeth in the ordinary way. He

*Read before the Ohio State Dental Society, December, 1899.

then went back to Japan, and sent us, as a specimen of his skill, a celluloid plate mounted with human teeth. It is quite doubtful whether this specimen could be duplicated in this country.

It is only within a comparatively few years that the Japanese have made much progress in the dental art; but the progress has been rapid, and an exhibit of modern Japanese dentistry would compare favorably with any American or European collection.

There are two colleges of dentistry in Tokio, the professors all being natives. Some graduated here, others in Europe and Japan. Each school is largely attended, and all their methods and appliances are modern—such as are used and taught in Europe and America.

I have here specimens of four dental journals, which are now published in the Japanese language, and to aid you in reading them, I would say that the title page is on the back cover, and you commence to read from the top downward like a column of figures, commencing at the upper right hand corner.

We have lately received through our Japanese dealers, specimens of artificial teeth which are fairly good imitations of our forms and colors, and it is only a matter of time when the Japanese will compete with the world in almost every line of manufacture.

The company which I have the honor to represent have, after years of patient work, made a collection of specimens of Japanese artificial dentures and instruments, woodworking tools, etc., pertaining to the dental art, which I herewith present. This will give you a better idea of the rapid strides made by them in the pursuit of your profession than pages of history could convey.

First on the list is a wax model of a partial case for the upper jaw. You will notice that the model and impression are both of wax. They used no plaster. The operation of making an artificial plate is as follows:

After having obtained the model of hard wax, a block of wood is selected of the proper size, into which holes are made to make spaces for any teeth that remain in the mouth. (This is for a partial denture.) The operator cuts away a portion of the wood to roughly approximate the shape of the model, then covers it with a coating of thick glutinous water color paint (usually red); then presses this model lightly against the block of wood.

Wherever the model touches the wood it leaves a portion of the paint. After removing the model, the painted portions on

the block of wood are cut away, and this operation is repeated until a perfect fit is obtained.

Before finishing the carving, the model is placed in the articulator, which consists of a wooden box with a sliding shelf, on to which the model is placed, and to which the block is also fastened temporarily. This is to ensure closure of the model and block of wood in the same position every time.

The articulator is also brought into use, after the plate is carved to a fit, to articulate the teeth when being carved into their places on the wooden plate.

The wood used in making teeth plates is a species of plum tree, very hard and close grained, and resembles our apple tree wood. The tree grows to about six inches in diameter.

The teeth used were of various kinds. Many human teeth were used, but ivory and stone seemed to be the most popular. Many plates are made with the teeth carved from the same block, making the plate and teeth all of one piece. The stone teeth used are made from a grayish kind of stone, somewhat resembling our soapstone, but harder, and is not a bad imitation for color of some of our dark shades of porcelain teeth. Some plates are carved in one piece in ivory, and are beautiful examples of art in that line.

We do not find any carved molars or bicuspidis in the collection, except for small partial cases, the grinding surfaces being covered with little nails with large heads, like hob-nails used in the soles of coarse shoes. Some of the plates shown have been worn so long that the heads of these nails have been worn entirely off.

We have also specimens of crowns and bridges made probably a hundred years ago. One, an ivory carving of front teeth attached to the natural roots of wooden pegs. Another, a single lateral upper incisor—a human tooth—set in ivory, with a large hole made through it laterally, into which cotton is packed. When the cotton is moistened it swells and presses against the adjoining teeth, and by this means is kept in place. A very ingenious device.

When we examine these artificial plates, we are at a loss to know how some of them could ever have been retained in the mouth; but they show unmistakable evidence of having been worn for years. There are no suction or air chambers to be seen, yet some of the mouths must have had no arch at all.

One thing noticeable is the closeness of the joints where the teeth are joined to the plate. This is done by carving a socket into the plate, into which the tooth fits perfectly. A hole is made laterally through these sockets, running from one side of the plate (as far as the teeth extend) to the other. Then a string is drawn through these sockets and through corresponding holes made through the teeth laterally, thus securing them in position. No trace of this string can be seen when the piece is finished, and the string seems to last as long as the rest of the piece.

BLACK TEETH.

You will see many black teeth among the collection. These are for married women, and have been made by the S. S. White Company for many years for the Japanese market.

There is a legend to the effect that a beautiful princess, whose husband lost his life in battle, was so grieved at her loss that, in order to repel the advances of the many suitors for her hand, she stained her teeth black, in order to mar her beauty. She being of high rank was a model for the rest of the high-born ladies in the kingdom, so far as appearance went. The custom was adopted by the high caste ladies in sympathy with the princess, and came into general use, until the original cause was lost sight of, and it came to be looked upon as a mark of beauty and aristocratic style. These black teeth were worn by married ladies only. The custom is now almost obsolete.

EXTRACTING.

In the collection is a hammer or mallet used in extracting teeth; it is a piece of lead wrapped in cloth, and held in the palm of the hand, and is used for striking the end of the steel punches. These punches are concave on their smaller ends, forming an edge, which is placed at an angle against the neck of the tooth to be extracted, and a blow from the mallet forces it upward out of its socket.

There are also other extracting instruments. A piece of narrow iron bent upon itself like the letter u, formed over a piece of wood, and wrapped with twine. The iron loop is placed over the tooth, and a twisting motion of the hand removes the tooth. You will notice that the instruments are very short and could easily be concealed in the hand of the operator.

You have heard the fairy tale about the Japanese dentist extracting teeth with the thumb and finger, unaided by any instrument. Some tourist, who spent six weeks in Japan, went home to write up a history of that country, has seen a tooth extracted in that manner and with this instrument, but the Jap was too smart to let him see the instrument.

In woodworking tools you will see that the saws are all draw cut and very thin. The Japanese woodworkers work toward them in sawing and planing. This enables them to use much thinner saw blades than we do, without danger of bending or buckling them.

In the collection you will notice a lady's outfit for staining her teeth and stenciling her eyebrows and face. The various paper packages are filled with black powder, into which is dipped the brushes made of wood, after being moistened with warm water and acid. The teeth are rubbed in this way until the desired color and polish is obtained. This operation, like hair dressing, must be repeated as often as appearance would necessitate.

I will not tire you with any further description of the specimens on exhibition, but would say that with the aid of the catalogue accompanying the exhibit you will be well repaid for your time by making a careful study of the collection.

Ohio Dental Journal.

MUMMIFICATION OF PULPS.*

By R. C. Gebhardt, D.D.S., Black River Falls, Wis.

My attempts in the line of mummification of pulps have, in the majority of cases, been failures. I do not know whether it was the fault of the method pursued, or whether it was a natural sequence. In the *Cosmos* of 1895, Dr. Soderberg gives his method of procedure, and it was this that I pursued. In substance it is as follows: The pulp is devitalized, using equal parts of arsenic, cocain, alum and glycerol, q. s. to make paste. When devitalized the main pulp chamber is opened up and its dead contents are drilled out, leaving that part of pulp in root-canals untouched. Then fill pulp chamber with the paste, pricking the paste into remains of pulp in the canals, although this last is not necessary.

*Read before the Wisconsin State Dental Society, at Madison, July 18th to 20th, 1899.

Then seal with cement, and over this insert the permanent filling. The mummifying paste is composed of the following:

Dried alum	1 ounce.
Thymol	1 ounce.
Glycerol	1 ounce.
Zinc oxid q. s. to make stiff paste.	

In December of 1895 I commenced to experiment with this method, thinking what a boon to suffering humanity it would be, and also what a load would be lifted from the shoulders of the dental profession in the time saved and the relief from nervous strain incident to the removal of obscure pulps. I doubt if I ever treated and filled the roots of a tooth by the old method but what I dismissed the patient, for the time being, with fear that I should see him return with a swollen face or perhaps worse. Of the thirty-five or more cases treated with the mummification process during three years, a few returned to me inside of six months.

One peculiarity noticed in those that returned was the seeming disintegration of the cement, a bulging out as it were, and it seemed as if there was expansion to such an extent as to throw out the filling or fracture the walls of the cavity. In opening up several of these after being treated by the mummification process, I found the pulps white, very tough, and they appeared desiccated and shriveled, and bathed in moisture. In several others, extracted on account of soreness, I found pulp in two of the canals perfectly dry, very tough and of whitish color; in the third canal, which no doubt caused the trouble, found remains of pulp surrounded with moisture but tough and white. One case, which I frequently see, has often slight soreness.

When examining these cases, I concluded that to mummify a pulp thoroughly, so as to give no trouble afterwards, we must have some remedy that will not shrink the pulp or shrivel it to such an extent that there will be a space between it and the walls of the canal. Otherwise, secretions of some kind will find their way into the canals, and sooner or later give trouble.

Another reason why I feared to continue the mummification was that after applying the paste the pulp remnants were shriveled or drawn from the apex of the root, thereby leaving an opening at apex, through which moisture found an entrance. If the apex could be tightly sealed or encysted at the very beginning, before the drawing away of pulp, we might avoid this.

Thymol, which is relied upon as the principal antiseptic, is slow in action, and whether a pulp would remain sterile indefinitely under its antiseptic action is doubtful.

Dr. Soderberg mentions alum as one of the properties of an ideal mummification agent, an ingredient that will quickly cause mummification by drying or shriveling of the pulp tissues. In that alone we can look for future trouble. The pulp being shriveled will naturally draw away from the walls of the root-canals, and secretions will eventually fill this space, and it is doubtful if thymol will indefinitely keep this moisture in an antiseptic condition. Furthermore, the majority of cements are not impervious to moisture, and in several of the cases opened up the cement looked as though it were disintegrated, perhaps by action of the mummification paste. Although I have about twenty cases in which the mummification has been a success, if after three years one can call the treatment a success, I feel that with 50 per cent. of the cases a failure, it does not warrant a continuance of this method of treating teeth.

DISCUSSION.

Dr. J. H. Woolley, Chicago: I have never mummified pulps, because I think the treatment unscientific. In root filling the canal should be thoroughly aseptic, absolutely dry, and the filling should fill the canal throughout the entire length, and should not disintegrate. Mummification meets none of these requirements. I had one case where the pulp had been mummified, and it was necessary to treat the tooth for nine months before it was serviceable. In speaking of pulps and fillings I wish to emphasize the necessity for proper occlusion of filled teeth. Many scientific operations fail through poor articulation, and I have found cases where the pulps died from malocclusion.

Dr. W. H. Cudworth, Milwaukee: I took up this practice about the same time Dr. Gebhardt did, soon after reading the article in the *Cosmos*. From about 150 mummified pulps I had more trouble than with all the pulps otherwise treated in eighteen years' practice. It is impossible to successfully treat such teeth when ulceration occurs.

Dr. F. L. Barney, Viroqua: My experience has been that if much of the pulp is left in position the tooth must be treated afterward, but when the most of it is removed the balance can be successfully mummified.

Dental Digest.

SYPHILIS FROM DENTAL INSTRUMENTS.*

By William L. Baum, M.D.

My interest was particularly attracted by experience with the following cases:

Case 1.—On October 9th, 1896, there appeared at my office a young man, twenty-eight years of age, who came to consult me about a peculiar skin eruption which had caused him much annoyance, not because of any irritation at the site of the lesions, but rather because of the consequent disfiguration.

He gave the following history: He was an American; had been practicing dentistry for four years; was married and the father of two children; had never suffered from any serious disease, and had never had a skin eruption before; there was no history of gonorrhœa or chancre. The present eruption occurred about two weeks previously in the form of small red blotches, erythematous in appearance. It was accompanied with violent headache and a feeling of general debility. Since then small papules appeared on the chest, back, face and extremities, and also on the scalp. There was general indolent adenitis present. The patient could not remember any particular lesion preceding these, except a very stubborn small sore upon the index finger of the right hand, near the matrix of the nail. This he explained by saying that he had accidentally scratched himself in this place with a dental instrument while filling some teeth for one of his patients. The epitrochlear and axillary glands upon the right side were much enlarged and somewhat tender to the touch. There was no doubt that this dentist had syphilis, and that his infection was either from a scratch with one of his instruments previously used upon a patient with syphilis or infection of the wound from the patient upon whose teeth he was working at the time. The latter theory he scouted, saying that she was a very estimable woman, a social leader, and one in whom it would be almost a crime to suspect the presence of disease. This last remark only too frequently presents the view of many members of our profession, as well as dentists, forgetting, as they do, that syphilis is a widespread disease, and that it is not necessarily a reproach to its unfortunate victim, but often, perhaps more often than believed, innocently acquired.

*Presented to the Section on Stomatology, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6th to 9th, 1899.

Case 2.—A man, twenty-nine years of age, a bookkeeper by occupation, appeared at my office in December, 1894, with an erythematous eruption of the skin and complaining of some soreness of the tongue and throat. He gave the following history: During the last week of September and the first week of October he had occasion to have considerable dental work done, in the course of which his tongue was slightly injured by a dental instrument. The wound apparently healed in a few days, but ten days later a small nodule was perceptible on the site of the wound. This became somewhat painful and increased in size. At the same time the glands of the neck became enlarged and painful; the nodule broke down in the center. This excavated erosion was surrounded by a hard, infiltrated zone. There was general enlargement of the lymph glands. A diagnosis of syphilis was made, and the patient made a rather uneventful recovery.

Case 3.—A man, aged twenty-two years, came to the clinic of the Post-Graduate School in January, 1895, with a large papillary syphilide. The glands in the neck were very much enlarged, and there was a sore upon the lower lip, at the internal border of the mucous membrane at the right side. He had not been exposed to any infection that he knew of. He had been under the care of the dentist for some weeks, and remembered sustaining a slight injury during the course of the dental work.

Case 4.—A woman, thirty-five years, married, the mother of five children, in October, 1895, consulted me on account of falling out of the hair and a slight eruption, typical symptoms of syphilis being present. She gave a history of a sore appearing upon the tongue, and of having received an injury during the time she was under the care of her dentist. Her husband was healthy.

Case 5.—A girl, aged fifteen, had frequent attacks of tonsilitis with subsequent hypertrophy of the tonsils. They were removed by a laryngologist. The base of the right tonsil remained sore for some time. It became quite painful and hard. Two weeks later all the glands, submaxillary, sublingual and cervical, became much enlarged and slightly tender. Eight weeks after the removal of the tonsils, the patient noticed the first eruption. Consultation with the laryngologist revealed the fact that he had not been in the habit of boiling his instruments, and had, according to his case-book, removed a tonsil a few days before the above-mentioned operation with the same tonsillotome.

Case 6.—A man, aged forty-seven, an express driver, in Sep-

tember, 1897, first noticed a small, hard lump on the edge of the upper lip on the left side, near the margin of the mucous membrane, which became hard and was accompanied by considerable swelling. The patient remembered that a few weeks before he had received an injury at this point while under the care of a dentist. The glands generally were enlarged, maculo syphili present.

It must be remembered that in all these cases there is a possibility that the infection might have occurred from the transmission of syphilitic virus by means of drinking utensils, pipes, etc., soon after the injuries were received, although this is scarcely probable.

Fournier, in his work,* collected 1,124 cases of extra-genital chancre; of these, 847 appeared in the region of the head, most of them being localized about the lips, tongue, tonsils, etc. The syphilitic manifestations in the mouth may be divided into three kinds, (1) the initial effect or chancre; (2) the secondary lesion, such as erythema, mucous patches, etc.; (3) the tertiary symptoms, such as gumma.

Chancre of the Lips.—In this region it may begin as a fissure, or as a small, hard papule. In a few days this lesion becomes markedly indurated, and in about two weeks the sublingual and maxillary glands become enlarged, those nearest the chancre becoming most enlarged.

Chancre of the Tongue.—This is not so frequent; it usually is found on the dorsal surface, the sides, or the tip. It generally consists of a hard, round or oval lesion, the surface later undergoing erosion, being surrounded by a hard or indurated zone. The glandular enlargement occurs the same as in the labial chancre.

Chancre of the Tonsils and Fauces.—This is not so common, and is usually recognized late. It is characterized by considerable swelling. The surface is covered by a tenacious yellowish-white secretion, is extremely painful, and its period of exulceration is marked by a decided destructive tendency, since it is usually accompanied by streptococcus and staphylococcus infection.

The secondary lesions have the following course:

Erythematous Syphilide.—This occurs on the mucous membrane, often coincident with the eruptive fever. The mucous

*Extragenital chancres, Paris, 1897.

membrane covering the soft palate, uvulæ and tonsils—this terminates at the line separating the soft from the hard palate—is livid in color.

Papular Syphilide.—This syphilide of the mucous membrane usually accompanies the secondary papular manifestations of the skin, although it may be present at any later time. It appears as an erosion, sometimes as an ulceration, at others as a scaly patch. Those papules that are situated on the anterior surface of the velum and anterior arch of the palate are the best developed. They undergo degeneration very quickly, causing circular turgid spots, or, where the degeneration penetrates deeper, a diphtheritic pseudomembrane will be found on the mucous membrane (Zeiss). Sometimes conical vegetations form upon the papules that are situated on the uvulæ or tonsils. The mucous membrane papules are most frequently found on the tongue. Macular syphilides also frequently occur on the tongue.

Gumma.—This may attack the tonsils, soft palate and uvulæ, causing much swelling, but little pain. Gumma of the soft palate may escape recognition and end in perforation. Syphilitic gumma of the tongue, which develops without causing pain, may be either in the mucous membrane or in the muscular structures. If it remains untreated, it will undergo disintegration, leaving an excavated ulcer behind.

The syphilitic contagion adheres to all textural elements, and textural detritus produced by suppuration or bionecrosis in consequence of syphilis. It is most abundant in disorganized syphilitic papules and the sloughing initial chancre. It may easily be carried by instruments, drinking utensils, knives, forks, cigar-holders, pipes, and by the hands, but there must always be some abrasion present or it cannot be inoculated.

Every patient in whom the diagnosis of syphilis is made should, before the inauguration of antisyphilitic treatment by mercurials, be sent to his dentist, in order that any caries of the teeth be remedied, and gingivitis treated. These precautions are necessary, and when properly carried out, the dangers of hydrargyric stomatis thus are greatly lessened.

It is necessary that the dentist and oral surgeon, to avoid being the carrier of the contagion, and for his own protection, should possess a knowledge of the characteristic appearance of the different syphilitic lesions met with on the mucous surfaces of the mouth and fauces, and personally supervise the disinfect-

tion of his instruments by repeated boiling and immersion in formalin or creolin solutions.

It might even be well to keep some instruments for use upon syphilitic cases only.

This paper has not been written in a spirit of criticism of the dental profession. The small number of cases reported in a practice covering several thousand syphilitics, is rather a tribute to the care and asepsis ordinarily practiced by the great mass of the profession.

Jour. Amer. Med. Ass'n.

ON EARLY DECAY OF THE TEETH.

By J. Kingston Barton, M.R.C.P., Lond.

Seeing that the enamel and dentin of the permanent teeth are formed so early in life, it is evident the factors concerned in the sound development of these parts of the teeth must produce their effects during the infancy of the individual.

The six-year-old molars, or first permanent molars, are far on their way of formation even before birth, but the incisors and canines do not begin to consolidate until a few weeks after the child has been born. At three years of age, most of the permanent teeth are well advanced. In the jaw of a six-year-old child all the permanent teeth, excepting the wisdom (third molars) are fully formed, saving the fangs. Hence, whether the child's constitution, or its infantile diseases, or the nature of its food be the cause of good or bad teeth, in any case the effect is produced long before the seventh year.

This subject comes well within the scope of the department of State medicine, prevention being the guiding principle of this section.

It has been urged that school boards should take the matter up. But the expense of treating diseased teeth would be very great, and seems entirely for the well-to-do. The State can alone touch the subject by attending to the question of prevention. It would be far better and cheaper for the State to provide good cow's milk for all infants who could not get breast-feeding, than to deal with bad teeth in children and young adults.

If bad teeth could be prevented, the gain to the State and individual would be of enormous value, as it is wonderful how many diseases can be traced indirectly to bad teeth. The one

condition that is chiefly responsible for bad teeth is rickets. The rich, who are hand-fed, all have rickets in a mild degree, and the poor almost all have it more or less severely. In the well-to-do the one common symptom of mild rickets is delay in the appearance of the milk teeth, and very few children cut their milk teeth at the proper time. Among the poor delayed teething and convulsions, bronchitis, diarrhœa, bow-legs, and other well-known manifestations show how numerous and prevalent are its symptoms.

Rickets is not a disease, but rather a diet disorder, almost entirely due to improper feeding; and the early use of starch, especially if insufficiently cooked, is nearly always the prime cause.

In India, and other warm climates where children live so much in the air, it is said they suffer but little from rickets. On the other hand, it is among these people that children are kept at the breast nearly two years, it being well recognized by the natives the deadly danger of infantile diarrhœa in a hot climate, and its associations with the use of animal milk. So it is the breast rather than the sun which prevents rickets.

For twenty years I have been observing the history of milk and permanent teeth in infants and children developing under one's care; also, inquiring carefully into the early feeding and health of growing children, young adults and old people. Three facts come out very strongly as a result of these inquiries:

1. Breast-fed children always have the best milk and permanent teeth.
2. Those fed from the beginning with cow's milk, ass' or goat's milk come off second best.
3. Directly starch or any patent food comes to be added to, or given in place of, cow's milk, then almost for certain will the milk and permanent teeth turn out badly.

When a person between twenty and thirty years has excellent teeth, it will nearly always be found he or she had a good period of suckling, followed by very simple feeding in the first few years of life.

If the first permanent molars are the only bad teeth, it is possible that the mother's health at the end of pregnancy was at fault, but errors in diet or disease in the very first months after birth will usually be found to have been the cause of such teeth being bad.

If the second or third molars are chiefly effected, then errors of health and diet between five and twelve years will have been noted. In every case where, after fifteen years, the teeth are bad, then it is invariably found the child had neither breast nor simple cow's milk, but one or the other of the patent foods came on the scene. Of these artificial foods, some are less injurious in their effects than others, but none are good. In the earlier years of condensed milk I have notes which show that in a few cases it did not produce such bad teeth as one would have expected, but this does not hold good with most of the modern preparations. In the Westminster Hospital reports of this year appears an excellent article by Dr. W. A. Wills, on the composition of modern Swiss milk and other infant foods; also certain statements in Parliament of late exposed the poverty of modern Swiss milk as a food substitute.

Many a modern child owes its life to one or other of the humanized foods, but I am sorry to say that the teeth of these children do not bear testimony to its being a perfect food. So there is some flaw in its composition the chemists have not yet satisfactorily overcome. Good as breast-feeding is, yet it is not everything. For after weaning at nine months, until about three years of age, comes the critical time when rickets is so rife. Hence, if after weaning judicious feeding is adopted, then the last pre-molars suffer, as also the bicuspid, with second and third molars of the permanent set; early breast-feeding having generally insured the success of the permanent incisors and canines.

In Scotland, teeth are destroyed by too early use of oatmeal, some of the worst cases I have ever seen occurring in children who were given oatmeal from birth. In Ireland teeth are spoiled by too early use of potatoes, and in England by the early use of badly-cooked flour and of bread. Until some teeth are cut the child should have nothing but breast or some animal's milk, the cow's for preference. By waiting for the appearance of teeth, the pernicious system of pap foods can be avoided.

As each set of teeth (incisors, pre-molars, canines and second pre-molars) appears, then further additions of egg, fish, vegetables and selected fruits should be given, until the milk set are complete, when meat may be added.

To bear out the above statements, 100 consecutive cases of all ages have been taken from the note-books. A further separate account was taken of 100 cases over the age of twelve. In these,

75 per cent. of good teeth had some form of breast-feeding; of hand-fed cases, 75 per cent. had bad teeth, the remainder being good or fairly good. In only one case was there loss of enamel where the history showed good breast-feeding, followed by fresh country cow's milk, and no known severe infantile disease. However, in this case the teeth lasted very well in spite of the loss of enamel, showing the value of the early breast-feeding.

Medical Press (The Dental Record).

ANKYLOSIS OF TEMPORO-MAXILLARY JOINT.

Mr. Jackson Clarke recently showed a girl, aged eight years, who had complete fixation of the lower jaw for over three years, dating from soon after an attack of scarlet fever with diphtheria. She was first taken to a London hospital, where, after an unsuccessful attempt to break down adhesions, the molar teeth on the left side were removed in order to allow her to be fed. Her appetite during the three years had been very large, but she remained very thin. At the Northwest London Hospital, in November last, Mr. Clarke cut down over the right temporo-maxillary joint through an incision planned to avoid the trunk of the facial nerve, the parotid duct, the superficial temporal artery and other structures near the joint, and removed the neck of the bone. The result of the operation was entirely satisfactory. After a few days the patient could masticate food. On leaving the hospital, fourteen days after the operation, she had gained six pounds in weight, although satisfied with a smaller quantity of food. At present she could open the mouth for more than an inch and close it perfectly. Mr. Clarke referred to another case, in which he had performed similar operations on both sides, in an adult, for bilateral ankylosis, and in which an equally good result was obtained. Now, nine months after the operation, the patient had improved rather than otherwise, having by exercise obtained a greater power of moving the jaw. Mr. Barker remarked that it used to be taught that such operations were useless, because the condition was sure to recur, probably because the wounds did not heal aseptically. He added that some interference with growth affecting the symmetry of the face was to be apprehended after these operations.

British Jour. of Dental Science.

THE X-RAYS AND ARTIFICIAL TEETH.

By Henry Blandy, L.D.S.

In the *Record* of December, 1899, is an extract from the *British Medical Journal*, recounting the death of a woman in Paris from swallowing a portion of her artificial teeth. It states that the X-rays were of no use in locating the position of the plate, on which were two teeth. The editor of the *Record* appends the note: "If the plate were made of vulcanite it would be transparent to the X-rays, and hence could not be localized." I have the honor and pleasure of doing the X-ray experiments at the General Hospital, Nottingham, and to test this statement was, of course, extremely easy. I feel sure the editor will forgive me for doubting the accuracy of his note, and in the interest of science publish these little experiments. Upon a Landall's Röntgen 10-inch by 8-inch plate I arranged eleven old vulcanite plates, one metal one, one bit of India rubber tube, and one elastic band, which encloses my numbering device (made of card and leather) for negatives—this is 223. The red and pink vulcanite plates show as distinctly as the metal one. The black vulcanite less so. But in all cases the teeth are perfectly defined, with their platinum pins. The tube, and even the elastic ring surrounding the leather case, are also plainly visible. I then bandaged one of the plates on the throat of a boy—taking the negative right through the neck, from front to back. The plate of vulcanite appears there distinctly also. The thickness of neck or part is merely a question of length of exposure and development. I write this at once, in order that the X-rays may not be discredited by the failure of the Parisian operator, or by the foot-note of our esteemed editor; or, perhaps, the next person who happens to swallow artificial teeth might be given over to cuts in the dark and exploratory incisions, from which X-rays now save many patients, in cases of foreign bodies.

The Dental Record.



DEATH UNDER CHLOROFORM FOR TEETH EXTRACTION.

Mrs. Helena Rosetta Goodwin died in a dentist's office in Canada under the influence of chloroform. She was a young woman, only 24 years of age. She wanted her family physician to extract her teeth, but he advised her to go to a dentist, which she did. The usual preparations were made, and before taking breakfast she went to undergo the operation. Her doctor knew her constitution well, and had no hesitation about administering the anæsthetic, as she had no organic disease of the heart, and was in apparently good health. All the customary precautions and preparations were made, and the result of the operation seemed entirely satisfactory till six or seven teeth were extracted. Then the dentist noticed a death-like appearance come over her face. He at once administered the usual restoratives, which failed to meet with the slightest response from the patient. Another medical man was called, but the combined skill could not restore her to consciousness. The doctor had administered such anæsthetics 400 times. Dr. J. C. Mitchell, coroner, came in response to a call from the local physician, and, after making full inquiries, considered that there were no grounds for an inquest, saying that he was perfectly satisfied that everything possible was done before and after discovery of the collapse, and no complaint could be made against anybody connected with the unfortunate occurrence.

British Journal Dental Science.

THE NON-REMOVAL OF SOFTENED DENTINE BEFORE FILLING.

By Dr. J. Leon Williams.

Remove the softer portions of dentine and place a pledget of cotton wool, saturated with absolute alcohol, in the cavity. Leave this for one minute, then remove, dry the cavity, and flood it with oil of cloves, which also leave for one minute. Any one accustomed to histological work will see the *rationale* of this treatment at a glance. Oil of cloves, which is known to the histologist as one of the most powerful clearing agents known—*i. e.*, it has the property of very rapidly penetrating any tissue, even bone

and dentine, that has previously been treated with strong alcohol. It is a sufficiently good germicide for the purpose, and it seems also to have mechanical effect of value in slight congestion of the pulp. Used as above described, it will penetrate a considerable thickness of dentine, and thus search out and destroy or render inert any forms of bacteria that may have penetrated beyond the point where you have cut. Dry out the excess of oil of cloves, and varnish the bottom of the cavity with Canada balsam, dissolved in chloroform, to which has been added ten per cent. of the solution of hydronaphthol in chloroform previously spoken of. For this use, the balsam is dissolved in chloroform, instead of turpentine, because here we wish it to dry rapidly, while in the treatment of the root-canal we do not wish it to dry rapidly. Partially dry the layer of varnish in the bottom of the cavity with hot air, and then apply to the floor of the cavity a piece of thick asbestos paper cut the proper size and shape. The partially dried varnish will hold the asbestos paper firmly in place. Now line the cavity with quick-setting cement, and fill with gold or amalgam. Such treatment will leave the tooth reasonably free from sensitiveness to the thermal change, even when the pulp is nearly exposed.

International.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

PULP "MUMMIFICATION."

The paper by Dr. Gebhardt, on "Mummification of Pulps," reproduced from the *Dental Digest* in this issue of the BRIEF, is probably but the forerunner of many similar records of the failure of a method of dealing with devitalized pulps, much exploited during the latter half of the last decade.

The salient feature of this method is the removal of the coronal portion of the newly devitalized pulp only, leaving the contents of the root canals to be acted upon by various antiseptic and, presumptively, preservative agents placed in the pulp chamber in lieu of the usual filling materials.

To render the preservative properties of these antiseptics more lasting, they are re-enforced by hardening or "tanning" agents, such as alum, tannic acid or formaldehyde, the object sought being to render the pulp more resistant to putrefaction by reducing it to a leather-like consistency, through their chemical action on its albuminoid and gelatinoid constituents—in short, to "mummify" it.

The fact that one essential factor in true mummification is dryness, and that, strictly speaking, animal tissue cannot be said to be mummified unless it is desiccated, might be passed without comment, were it not for the pathological significance of moisture as associated with devitalized pulp tissue in the roots of teeth, where, at a temperature approximating body heat, it furnishes one of the indispensable elements of a culture medium for septic organisms; so that, granting that the "tanned" tissue is a mum-

mified pulp, its dentinal encasement is far from being a typical mummy case in a mummifying environment.

Not less significant is the fact that the fluids derived from the blood serum, with which the walls of a root are bathed, not only supply moisture, but are endowed with a solvent quality under which almost any substance susceptible of gastric or intestinal digestion is, if left for a sufficient length of time in a root-canal, softened and generally dissolved and absorbed. This is evidenced by the ultimate disintegration and partial or complete disappearance of vaseline, wax, praffin, salol and allied substances when employed as root fillings. Hence the assumption that a pulp once mummified will remain a constant and changeless quantity in a pulp-canal is both theoretically and practically fallacious.

There is always a lurking danger in the presence in a pulp-canal of dead animal tissue, however fortified against decay. Its harmfulness or innocuousness are dependent upon a complex of conditions difficult to formulate. The most obvious fact, however, is that the danger from a dead pulp is directly as its bulk and inversely as its resistance to decay; inversely, also, as the resistance of the root investments to the morbid products of its putrefaction when decay does occur. The less the mass of putrescent matter, the less the volume of poisonous principles evolved, and the less the probability that the forces of tissue defense will succumb to their toxic power.

Fortifying pulp tissue against putrefactive organisms by an arsenal of antiseptics stored up in the pulp chamber as a base of supply to be indefinitely drawn upon, might be well enough could there be any assurance that the arsenal will not be captured by a flank attack around a leaky filling, or by invasion through a highly permeable apical foramen. But even if this highly probable contingency does not arise, there is every likelihood that the antiseptics thus far declared desirable and of approved value in pulp mummification will all, sooner or later, undergo absorption through the dentinal and cemental walls of the tooth.

The idea that the apical foramen once sealed those walls form an impervious barrier against the osmotic ebb and flow of solvent fluids, is not tenable; on the contrary, the dentinal tubuli and cemental cells, by their direct connection with the circulatory current of the peridental membrane, are kept charged with fluids in ceaseless molecular activity and responsive to all the influences, chemical or physiological, by which, through endosmotic and exosmotic processes, an equilibrium between them and the fluids of the pulp chamber is maintained.

Under such conditions, only such antiseptics as are highly resistant to solution can for prolonged periods preserve their molecular integrity and antiseptic power. Of these, the most powerful are of inorganic origin and undesirable for purposes of root antisepsis, either because of their irritant quality or their discoloring effect.

The only effective way in which a pulp-canal can be maintained in an approximately aseptic condition, is by sealing it, not only at both ends, but for its entire length. For the average case probably nothing more effectively accomplishes this than gutta-percha, which, by the aid of heated instruments, can be forced into quite minute prolongations of the pulp-canal, and can be packed firmly against the orifices of the dentinal tubuli. Others of the plastics, when thoroughly packed, are also excellent for the purpose. Tightly fitting metallic points, such as those of Weld, are likewise effective, and have the advantage of being aseptic, a quality in which, owing to their porosity, the plastics are lacking. With such agents at our command, and such aids in gaining access to and removing the contents of pulp-canals as are furnished by dental engines, electric motors and improved burs and drills, there would seem to be little, if any, excuse for abandoning, on the score of a saving of time and labor, methods of approved efficacy for one at best but experimental, and the percentage of failures from which, already formidable, is sure to increase with the progress of time.

THE OTTOLENGUI AMENDMENT TO THE PATENT LAW.

Two years ago, during the second session of the Fifty-fifth Congress, a bill was presented embodying the following amendment to the patent law:

"But no patent shall be granted upon any art of treating human disease, ailment, or disability, or upon any device adapted to be used in the treatment of human disease, ailment, or disability, or attached to the human body and used as a substitute for any lost part thereof, or upon any art of making such device, unless such device is adapted to be put on the market, and sold substantially complete and ready for use or attachment."

Owing to the almost entire absorption of the time and attention of Congress in legislation relating to the war with Spain, in which this country was then engaged, this bill failed to secure consideration, although at one time the prospects for a favorable report from the Committee on Patents of both the Senate and House of Representatives appeared to be encouraging.

Through the efforts of the originator of the bill, Dr. R. Ottolengui, acting as a committee of the New York State Dental Society, it has again been presented in both Houses; in the Senate by Senator Platt, of New York, on December 6th, 1899, and in the House by Congressman McClellan, on January 22d, 1900. The Senate bill is numbered 269. The number of the House bill is 7,017. The active personal interest in the question of dental patents which has been forced upon thousands of dentists in this country by the renewed aggressions of the International Tooth Crown Company makes the time most opportune for an appeal to the dental profession to bring to bear all possible personal and societary influence in favor of the adoption of this proposed amendment.

A careful reading of the bill will show that it has been framed in a wise and conservative spirit. Had the amendment been made radical in its provisions, interdictive of all patent monopoly on any apparatus or appliance used in any branch of medicine or surgery, there would not have been the slightest possibility of

securing even a favorable report from the Committees on Patents, much less a majority vote in either House.

The securing by dentists of patent monopolies on articles which can "be put on the market and sold substantially complete and ready for use or attachment" may or may not be justifiable; there is much to be said on both sides of that question; in any case while the exactions imposed by such monopolies may be considerable they, even at their worst, are not intolerable.

When, however, a patent right monopoly is granted upon an art of treating disease, or disability, or upon a device which the user must himself make and adapt to each individual case, the exactions imposed by the monopoly become truly intolerable, because they must of necessity be made inquisitorial if they are to be made profitable.

The holder of such a patent has nothing to sell but an abstraction—the right to the use of an idea; his profit must accrue from such use, and for proof of the using he must have access to the user's books of account, or to the patient to whose case the idea was applied. Thus is involved a double invasion of privacy—the privacy of business transactions, and the privacy of professional relations.

The history of the patents on crown and bridge devices fully illustrates the character of the evils from which Dr. Ottolengui's bill seeks for the future to save the dental profession. Even under existing laws the crown and bridge patents were of doubtful legality; but the gain from the proposed amendment is that by it the issuance of all such patents is expressly ineredicted.

It is true that so far as crown and bridge patents are concerned the future is secure, the time for which they were granted having expired; but in this age of revolutionary discoveries it is not safe to assume that in days to come similar monopolies may not spring up to vex us with their harassing exactions. Hence, the need for anticipating the future and guarding against a danger the formidable nature of which we have already learned from bitter experience.

To this end no better means of defense presents itself than Dr. Ottolengui's bill, and to ensure its adoption the dental profession should devote all its energies and bring to bear upon the Senators and Representatives of the several States every legitimate influence by which their support of the measure may be secured.

It is to be hoped too that the medical profession may be induced to give the measure its active support; the provisions of the amendment are in fullest harmony with the principles of the ethical code to which every honorable physician acknowledges allegiance, but the binding character of which as a rule of conduct is being seriously weakened through the growing commercialism of the age.

Secret remedies and patented formulæ, although both forbidden by the code, are in constant and increasing use, and with disastrous results not only to professional morals and professional standing, but to professional emolument as well. The convenient proprietary preparation with its catchy trade-mark name, once endorsed by the physician sends many a patient to the drug clerk for the remedy rather than to the doctor for advice when an ailment returns.

Antitoxins, too, have been patented, as well as many of the instruments and apparatus so largely used in modern medicine and surgery. That some discovery in the art of treating human disease so effective in the saving of human life as to be indispensable may be made a patented monopoly, with all which that implies, is not so remote a contingency that it can be safely ignored, and heedfulness of the lessons of the past as well as prevision of the possibilities of the future, alike enforce upon physicians and dentists the wisdom of giving to the Ottolengui bill earnest and active support; for while that measure is not a panacea for all the evils of professional commercialism it at least furnishes a safeguard against some of its more pernicious manifestations.

DENTAL SURGEONS FOR THE ARMY.

The Otey bill providing for the appointment of contract dental surgeons for the army, to which attention was called in the last issue of the BRIEF, has not yet been acted upon by the House Committee on Military Affairs; its final consideration having been necessarily postponed because of the immediate urgency of other matters before the committee.

The bill now bears the following endorsement from the Surgeon-General of the Army:

"WAR DEPARTMENT, SURGEON GENERAL'S OFFICE,
January 16th, 1900.

"Respectfully returned to the Honorable, the Secretary of War, recommending approval of the bill. The large number of troops in the Philippines, and elsewhere, where the services of competent dentists cannot be secured, makes it desirable that the government should make a reasonable provision for emergency dental work required by officers and enlisted men of the army.

(Signed) "*George M. Sternberg, Surgeon General U. S. Army.*"

This endorsement is a most important gain, and the passage of the bill is so strongly urged by large numbers of the medical staff of the army, that there seems to be but little doubt of a favorable report from the committee and of the ultimate enactment of the bill by both Houses of Congress. The friends of the measure should, however, by no means relax their efforts until the law is finally adopted. _____

ANNOUNCEMENTS.

PENNSYLVANIA BOARD OF DENTAL EXAMINERS.

The Board of Dental Examiners of the State of Pennsylvania will hold examinations simultaneously in Philadelphia and Pittsburgh, May 8th, 9th and 10th, and in Philadelphia, June 19th, 20th and 21st. Application for examination must be made to Hon. James W. Latta, Secretary of the Dental Council, Harrisburg, Pa.

G. W. Klump, Secretary, Williamsport, Pa.

OKLAHOMA BOARD OF DENTAL EXAMINERS.

The Oklahoma Board of Dental Examiners will hold their seventh annual meeting at Oklahoma City, May 1st, 1900. All applications should be made before the 15th of April.

E. E. Kirkpatrick, Secretary.

KENTUCKY STATE DENTAL ASSOCIATION.

Attention is called to the change of date of the meeting of the Kentucky State Dental Association. On account of change of meeting of Confederate Association and for the purpose of getting railroad rates, we too have changed our date to May 29th, 30th and 31st. We have some thirty papers promised for the meeting and nearly as many clinics, and we will still add others to the list. We have men on the program from about twelve States. Don't fail to come and meet with us, and we promise you a fine time.

F. I. Gardner, D.D.S., Secretary.

NEBRASKA STATE DENTAL SOCIETY.

The twenty-fifth annual meeting of the Nebraska State Dental Society will be held in Omaha, May 15th to 18th, 1900.

Leah Mills, Cor. Sec'y.

VERMONT STATE DENTAL SOCIETY.

The twenty-fourth annual meeting of the Vermont State Dental Society will be held at St. Johnsbury, March 21st to 23d, 1900. A cordial invitation is extended to all.

Thomas Mound, Rec. Sec'y.

INTERNATIONAL DENTAL CONGRESS.

Report of Committee on Transportation.

The Sub-Committee on Transportation has completed arrangements with the well-known tourist firm of Thomas Cook & Sons, 251 Broadway, New York, so that dentists who expect to attend the Congress to be held in Paris, commencing August 8th, 1900, may secure for themselves and families steamship and railroad tickets and hotel accommodations at the minimum of expense and trouble.

In making these arrangements, the committee has taken into consideration that while some of the delegates may wish to secure only transportation from New York to Paris and back to New York, many delegates will wish to visit other parts of Europe

during the summer, and they have planned the following tours, to assist such in the selection of a trip that the time at their disposal and their means will suggest.

TOUR I.

A. From New York by Red Star Line Steamer "Friesland," on July 18th, for Antwerp; thence rail via Brussels to Paris, returning same way to New York. First class passage, providing berth at minimum rate for two-berthed room, \$157.85.

If traveling second class from Antwerp to Paris and return, fare would be \$4.65 less.

By traveling on steamers "Kensington" or "Southwark," of same line, fare would be reduced.

B. *Via Cherbourg (North German Lloyd Service).*

From New York by North German Lloyd steamers "Barbarossa" and "Friederich der Grosse," sailing July 12th and 19th, respectively, for Cherbourg; thence rail to Paris, and return same way (twin-screw service only). First class passage, providing berth in room for two persons (minimum rate), \$177.00.

C. *Via Cherbourg (Hamburg-American Line Service).*

From New York by Hamburg-American Line steamers "Pennsylvania" and "Pretoria," sailing July 14th and 21st, respectively, to Cherbourg, rail to Paris, and return via Boulogne-sur-Mer, and Hamburg-American steamer (twin-screw service) to New York. First class passage, providing minimum fare for berth in room for two persons only, \$184.25.

Lower fares can be obtained if occupying berth in room with two or three other occupants.

D. *Via Boulogne-sur-Mer (Holland-American Line).*

From New York by twin-screw steamers "Potsdam," "Stattendam" and "Rotterdam," sailing July 7th, 14th and 28th, respectively, to Boulogne-sur-Mer; thence rail to Paris, and return same way to New York. First class passage, providing minimum fare for berth in room for two passengers, \$163.00.

If traveling second class from Boulogne to Paris and return, fare would be \$3.80 less.

Lower fares can be made by leaving on steamer "Sparndam," July 19th.

Tickets can also be arranged via Southampton or Liverpool, at proportionate fares.

TOUR II.

To provide hotel accommodation in Paris for two weeks (14 days and 13 nights) at Grand Hotel du Trocadero, carriage drives for three days, including excursion to St. Cloud and Versailles, 20 tickets of admission to Exposition and transfer to and from railway station to hotel, \$65.00.

TOUR III.

One week's tour to Switzerland from Paris, visiting Lucerne, Interlaken, Thun, Berne, Lausanne, Lake Lemane, Geneva; including hotel accommodation, sight-seeing, etc., second class R. R., \$50.00.

TOUR IV.

One week's tour from Paris to Mayence; thence steamer on Rhine to Cologne; rail to Amsterdam, The Hague, Rotterdam, Antwerp, Brussels, Antwerp, Harwich, London, including second class railway travel, first class on steamers, hotel coupons (three meals per day, with lodging), \$42.50.

Those traveling via Cherbourg can return by steamers of same line from Southampton, and so make a short tour from the Continent through England in connection.

There is a United States revenue tax of \$5.00 upon each ticket, regardless of the number of passengers in whose name it may be made out.

Should any one wish to make a longer tour than any of the foregoing, or one with a different route, Messrs. Cook & Sons have such a large variety of tours already planned that there need be no difficulty in making a selection to suit the taste, means or the time at the disposal of any one.

The war in South Africa has caused the withdrawal of many of the English steamships. Passenger accommodations across the Atlantic will be less than usual this summer, while the Paris Exposition is attracting great numbers, so that the committee wish to impress upon delegates the great importance of securing their steamship accommodations at once.

Address all communications regarding steamships, railroads, hotels, etc., to Messrs. Thomas Cook & Sons, No. 251 Broadway, New York.

WILLIAM JERVIE, *Chairman*,
A. W. HARLAN,
W. E. GRISWOLD,
W. W. WALKER,
Transportation Committee.

CORRESPONDENCE.

EDITOR DENTAL BRIEF:—Will you kindly permit me to call attention to the remarkable report of Doctors Brown, Sanger and Meeker, given in the *Items of Interest* of October last (page 749).

This report is an attack upon the Special Committee on Dental Prophylaxis, appointed by the New Jersey State Dental Society to investigate and report upon dentifrices and other prophylactic agents.

Every thoughtful dentist, reading the criticism of Dr. Brown and his committee, and their indictment of the integrity and capacity of Doctors Watkins, Luckey, Wilson, Waas and Hoblitzell, must be impressed at once, not only with its unethical and unprofessional, but also with its superficial and inconclusive character.

Without attempting to give, as the case demands, proofs of the most cogent description, Dr. Brown and his committee deliberately rob their confrères of their reputations as sincere and intelligent investigators by practically charging them with having conspired with the manufacturers of Dentacura to place in their report that article at the head of prophylactic agents.

Dr. Brown and his committee have utterly failed to show satisfactory proof for their charge, or good reason to believe that the Committee on Dental Prophylaxis did not conscientiously report the results of an honest and unbiased investigation of dentifrices, etc.

The simple duty and only course for an honest dental investigator is to relate the results derived from experiments or clinical observations, and to give the facts as found, without fear or favor.

This the Committee on Dental Prophylaxis claim to have done. On the other hand, Dr. Brown and his committee, without presenting an iota of evidence, either direct or indirect, declare the report on dental prophylaxis to be "worthless stuff," "entirely useless" and "unworthy of a place in the archives of the society."

I have in my possession a copy of the report on dental prophylaxis, and have most carefully examined it, and I find that it furnishes positive and extrinsic evidence of a careful and conscientious attempt to present facts based upon cogent and satisfactory proofs.

Indeed, so evident is this, that I can hardly believe that Dr. Brown and his committee ever read the report they criticise. They charge the Committee on Dental Prophylaxis with "careless and unscientific methods," apparently without knowing the manner or method followed by that committee in their investigations. The only proof they adduce, and to which they give great weight, is that the report on dental prophylaxis claimed to have had chemical and comparative analyses made, and that to make an analysis, such "as was claimed was done in the report, would have cost, at the lowest estimate, \$1,000."

They, therefore, argue that, "as no evidence of any expense has been presented to the society—of course these tests (claimed to have been made in the report) are absurd and useless"—consequently, the report on dental prophylaxis is "worthless stuff," "unworthy of a place in the archives of the society."

But, unfortunately for this argument, the report on dental prophylaxis does not in any way claim, mention or suggest that the committee ever had a chemical or comparative analysis made. There is not even a hint of such a claim in the report. What must be thought, then, of men who criticise and condemn their colleagues, members of their own society, for "careless and unscientific methods" of investigation, when they themselves do not even take the trouble to carefully read the report which they criticise, or to investigate the methods adopted by their confrères, whom they condemn?

"Noblesse-oblige."

EDITOR DENTAL BRIEF:—I most emphatically disagree with Dr. Theo. Siqueland's recommendation of an antiseptic so destructive to the natural teeth in its discoloring effect as oil of cinnamon, a discoloration almost impossible to remove. Campho-phenique or phenol-sodique can be used with equal advantage in any case, and with no disastrous results.

F. J. Bethel, D.D.S., Stockton, Cal.

OBITUARY.

Edward Stanley Fenda, M.D., D.D.S., died in Jersey City Heights, New Jersey, on Friday, January 19th, 1900, in his forty-fourth year. He was a native of New York State, and was for some years engaged in the practice of medicine in Metuchen, N. J., but abandoned that pursuit to enter upon the study of dentistry in the New York College of Dentistry, from which he

graduated in the same class as myself, in the year 1885. He was for several years engaged, in partnership with me, in the practice of dentistry in New York City.

Dr. Fenda was a man possessing many excellent traits of character, but he lacked the stability of purpose essential to success in any pursuit. He was easily discouraged, and his later years were darkened by poverty and ill health. Although without family ties or known relatives, he did not lack friends to give him assistance in time of need. His death was sudden, probably from an overdose of morphin and cocain, to the use of which he had, unfortunately, become addicted.

L. Arndt, Jersey City Heights, N. J.

RECENT DENTAL PATENTS.

641930, Artificial tooth, Robert Brewster, Chicago, Ill.

641672, Dental clamp, Walter I. Brigham, South Framingham, Mass.

642114, Tooth brush, Charles L. Hall, Oconto, Wis.

642536, Combined dental engine and chair, Charles C. Southwell, Milwaukee, Wis.

642404, Head-rest, Basil M. Wilkerson, Baltimore, Md., assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

642405, Dental chair, Basil M. Wilkerson, Baltimore, Md., assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

32154, Design, handle for dental instruments, Wm. E. Harper, Chicago, Ill.

643038, Dental articulator, James W. Bryan, Russellville, Ky.

643039, Dental plugger, Cecil L. Calvert and E. Anderson, Sundance, Wyo.

642959, Head-rest, Alexis E. Caron, assignor to T. E. Caron, Kankakee, Ill.

TRADE-MARKS.

33895, Teething remedy, Johannes B. de Beer, New York, N. Y.

33947, Disinfectant, Annie Campbell, Washington, D. C.

34072, Tooth paste, Thymo Chemical and Manufacturing Co., Columbus, Ohio.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

Questions and Answers.*

Question 75. I am a young man, and have for the past eighteen months been trying to establish a dental practice, having received my diploma nearly two years ago. So far I consider that I have made a complete failure, and I am very much discouraged. I have located in three different towns in different parts of my native State. Out of these eighteen months' trial I have only been able to make my expenses one month, and this was principally through my near relatives.

Can you tell me what to do to gain favor and success? I have tried every plan conceivable, except advertising, and unless things go better I am afraid I shall have to resort to this latter method, although it is extremely distasteful to me. I have always been very careful in my habits; my office is clean and attractive; I am particular about my personal appearance; I am always in my office from eight in the morning until five in the afternoon; I go to church and try to become acquainted in various ways. I have tried high prices, and I have tried low prices, and in some instances I have attempted to get a start by making no charge at all, and yet I do not succeed. In connection with this, so many things turn up to discourage me. My patients are so few in number that with each ring of the door bell I am seized with a nervous chill, which, of course, I try to suppress, but fear I am not always successful in doing so. To add to my discomfort I occasionally receive letters from my former classmates in which they say how successful they have been, and each time this happens I am again reminded that something must be wrong. I hardly think that my methods of operating can be at fault, because my operations in each locality have been so few that they could do me neither harm nor good. I am now planning to make one more move, and before starting in a new place I would like to be advised as to my shortcomings. If after making another effort I fail, I shall have to give it up and go at something else.

I infer from what you say that you are over-estimating the possibilities of practice building. Three locations within eighteen months would mean an average of six months in each place, entirely too short a time to gain a footing in the practice of dentistry. I am free to express the opinion that had you remained in the town first chosen that you would feel much more encouraged at the present time. It may be safely said that in the

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

majority of instances at least five years should be devoted to "waiting" for a practice, notwithstanding the nature of the letters received from your former classmates, who may be inclined to exaggerate. Your restlessness and changeable nature, together with the nervousness to which you refer, are undoubtedly the primary cause of what you inappropriately term your failure. You have not "failed."

Question 76. Will you please give me the method of making a Coffin split plate, and in what class of cases is it applicable?

The manner of making such an appliance is pretty thoroughly described in the modern text-books, but as these may not be at your disposal I will briefly go over the method. The primary object for which a Coffin split plate is made is that of expanding the arch, and as a more or less contracted condition of the arch usually accompanies malposed teeth, it is most frequently used in connection with regulating cases. After making the cast, which should include a faithful reproduction of the occlusal surfaces of the teeth, a thin wax base plate is made to cover the palate, and pass over and include the posterior teeth. If it is desired to expand the upper arch, a spring is made of piano wire, but something after the form of the letter W, the free ends of which are so constructed that they may be imbedded in the base plate in such a manner that they will cause expansion of the plate, which, after being vulcanized, is sawed in two at the median line. With a proper adjustment of the spring, considerable lateral pressure may be brought to bear upon each lateral half of the arch, the amount of force being readily controlled by the adjustment of the spring.

Question 77. What is Soderberg's paste for pulp mummification?

Dried alum, glycerol and thymol in equal parts, to which is added zinc oxid in sufficient quantity to make a stiff paste.

Question 78. Can you furnish me with full directions for gold and nickel plating?

Geo. P. Lux, D.D.S., Topeka, Kansas.

Ammonia Gold Cyanid Solution.—Dissolve in a Florence flask one and a half dwt. of pure gold in two or three parts of hydrochloric acid and one part nitric acid (aqua regia), applying gentle heat. When all is dissolved pour the chlorid of gold into an evaporating dish and place it in a sand bath to evaporate to dry-

ness, by the application of heat. This mass is next dissolved in a half pint of distilled water. Then precipitate this yellow chlorid of gold solution with aqua ammonia, by adding it drop by drop until all is down. Next pour off the clear liquid and wash the precipitate, which is ammonia-gold, several times in distilled water. Following this make a strong solution of potassium cyanid, using two ounces to a quart of distilled water. Then dissolve the ammonia-gold precipitate in it, stirring with a glass rod. Next filter the mixture. It must be worked hot (130 F.). All work to be plated must first be passed through a hot solution of caustic potassa.

Double Sulphate of Nickel and Ammonia.—To make a solution of double sulphate of nickel and ammonia, cube or grain nickel is dissolved in sulphuric acid one part and water two parts, after adding a little nitric acid and applying heat it is set aside to crystallize. To each ounce of these crystals add one ounce of sulphate of ammonia. The two salts are dissolved in water, then filtered and evaporated to crystals. In making up a bath twelve ounces of these crystals to one gallon of water is used. The nickel solution must be neutral, and worked hot at about 130 F. In plating brass or copper the piece to be plated is first dipped in a weak solution of potassium cyanid, then washed in running water before going into the nickel solution. Iron or steel are dipped in a pickle of hydrochloric acid, one-half pound to a gallon of water. These metals must also be washed before being placed in the plating solution. The surface of all metals to be plated must be chemically clean, to accomplish which pass through a hot solution of caustic potassa; next dip into running water, then into the nickeling solution.

E. A. Kretschman, Philadelphia.

Question 79. What is the prevailing opinion at the present time as to the effect of diet upon the tissues of the teeth?

J. G. McK., Toledo, Ohio.

Question 80. What are the most pronounced symptoms of acute and chronic lead poisoning, and do both conditions make their presence known by colored lines upon the gums?

Lead and its compounds are gastro-intestinal irritants. It is only the chronic form which makes itself manifest by a blue line at the gingival margins. The symptoms of acute lead poisoning are a pronounced metallic taste, a dryness of the mouth and throat accompanied by unusual thirst, colic, drawing pains in the

lower extremities, and frequently convulsions and paralysis, coma and collapse. The treatment consists in thorough evacuation, and the employment of one or more of the following remedies: Epsom or Glauber salts, which are antidotal; morphin; milk; and, to eliminate the poison, potassium, iodid.

Question 81. Can you give a method of using gutta-percha in connection with oxyphosphate in setting crowns?

Gutta-percha is sometimes employed in addition to the cement as a medium to prevent the deterioration of the cement. When used for this purpose it must be so placed that it seals that part of the cap which communicates with the exterior, or in other words it makes the joint. When it is desired to thus use it the gutta-percha is first placed in the cap in sufficient quantity and in the proper location to perfectly seal the band. This is then warmed and pressed home, after which the entire crown is withdrawn and all surplus gutta-percha removed. The balance of the work, that is, the use of the oxyphosphate is afterward proceeded with in the usual manner.

Question 82. In using an arsenic paste, as of arsenic and iodoform in equal parts, saturated with carbolic acid, what fraction of a grain would you use? I have been using pieces the size of a pin head. The text-books direct $1/100$ to $25/100$ of a grain.

Dr. Ira B. Archer, North San Juan, Cal.

Your question may best be answered by referring to an article written by Dr. James Truman, and published in the *Dental Cosmos* for November, 1887, page 678. You may be still more fully informed by referring to an article by Dr. E. C. Kirk, in the same journal, issue of March, 1887.

Question 83. Would it be considered an infringement of the rules governing professional etiquette to engage in conversation with a traveling companion, a total stranger, but a resident of the same city, and so wording the conversation that it might influence the stranger to call and see you when in need of dental services? One of my colleagues insists that this may be done with propriety, and boasts of having successfully carried it out in a number of instances. I contend that it is a disreputable method of gaining favor. Am I right? *J. B. K., Ft. Wayne.*

Some years ago the *L'Odontologie* published an account of such an occurrence which took place on top of an omnibus. The dentist, a clinician in a French college, was said to be on his way to that institution to give a clinic at the time, and was already seated. Presently a well dressed, prosperous looking gentleman

boarded the coach, and took a seat beside him. The dentist began a conversation, which was soon entirely directed to his vocation. The subject of the teeth appeared to be extremely interesting to the gentleman, and the conversation appeared to be mutually pleasant. Before dismounting the dentist referred with emphasis to his superior qualifications and tendered his card, which was accepted. The same journal in commenting on this incident characterized it as an act of gross impropriety, and so it is considered at the present day, belonging only to the charlatan.

Practical Points.*

The Care of the Teeth.—"In caring for the temporary teeth the heart should be full of love; in managing the permanent ones the head should be full of wisdom."

Fred. J. Capon, Dominion Dental Journal.

To Prevent Plaster from Adhering to Flask.—Dr. Buckland paints the inner surface of flasks for vulcanite work with a solution of whiting, which allows the plaster to be removed easily and protects the flask from corrosion.

Dental Digest.

Prevention of Decay.—In my own practice I rely chiefly upon a strong solution of hydronaphthol in oil of cassia. This I use freely in all cavities, and before filling I use a varnish of Canada balsam in chloroform in which there is ten per cent. of hydronaphthol.

J. Leon Williams, Items of Interest.

Solidified Formaldehyde in the Treatment of Blind Abscess.—The ability of this gas to work beyond the apex of the root; to follow the tubuli of the dentin to the cementum; its ease of application (in the pulp chamber); the absence of strangling fumes as with the aqueous solution, and my success with every tooth so treated, compel me to believe that in solidified formaldehyde is found the most effective agent for the treatment of pulpless teeth in all stages and in all environments.

F. B. Lawrence, Western Dental Journal.

Reciprocity Between Dentists and Medical Men; the Question of Fees.—The non-acceptance of fees appears to be based upon the idea of reciprocity of service, but it must be remembered that the consumption of the dentist's time is much more considerable than that of the medical man. Modern dental methods entail an even greater expenditure of time than was formerly the case.
* * * It appears to us, therefore, not to be a question of rights, but to be a matter essentially between man and man, in which it is for each to take the course which commends itself to him.

British Medical Journal.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Extracting Badly Decayed and Broken Off Upper Molars.—Cut through with a bur, separating the lingual from the buccal roots, which can then be removed singly.

G. H. Kittell, Western Dental Journal.

Preparation of Steel for Regulating Appliances.—When formed to the desired shape, steep in chlorid of zinc and then in pure molten tin. No oxidation will then take place; its tension is improved, and it can be united to any other metal by pure tin, using the chlorid of zinc as a flux. If imbedded in vulcanite it will not cause disintegration.

D. Genese, Ohio Dental Jour.

To Sharpen the Points of Hypodermic Needles.—With the cleansing wire in place sharpen on a fine corundum stone in the dental engine. The wire will be ground at the same time, and on being pushed through will carry with it any debris made in grinding and prevent any burr being turned inward.

Fred. B. Spooner, Items of Interest.

Pulp Removal in Badly Broken Down Molars.—In the use of cocain under pressure, to avoid forcing the cocain out of a tooth which is badly broken down, fit a matrix of thin German silver closely to the tooth and apply the unvulcanized rubber over that.

Dr. Crosby.

When the cavity is large, black rubber will be found better on account of its tenacious quality.

J. J. Wright, Dental Digest.

Extension to Prevent Displacement.—I cannot bring myself to believe that it is right, even if the patient submits to it, to convert a small cavity into a large one in order to make it more secure. * * * If, in the course of time, decay recurs, it is not a difficult matter to cut out the injured portion and add to the filling. If made large at first, and in the course of time the filling has to be renewed, it is a very difficult matter to make another filling larger than before.

S. H. Guilford, International Dental Journal.

To Prevent Shrinkage of the Gums and to Preserve the Fестоons While a Denture is Being Made.—The sockets must be kept open, for which purpose a model, including the roots, is made as follows: Take an impression in plaster before the teeth are removed. Then extract the teeth, smooth the roots and insert them in the impression, which is then poured. Remove the natural teeth from the cast and make a plate of vulcanite, which will carry points corresponding to the roots of the teeth, and which will fill the sockets. This can be worn without irritation, and there will be no hemorrhage. Facings having long necks are to be used for the denture, entering the sockets as high up as possible, say three-eighths of an inch.

S. J. Hagan, Journal of the British Dental Association.

Hemorrhage After Pulp Extirpation.—Wind cotton on a broach, dip in 25 per cent. pyrozone and put up the canal, and the bleeding will stop instantly. The canal can be dried and filled at once.

L. West, Items of Interest.

Acetanelid in Toothache.—A saturated solution of acetanelid in alcohol with a few drops of oil of cloves forms an elegant preparation and meets many a demand.

M. G. Price, M.D., Medical Summary.

Chloro-percha as a Root-canal Filling.—The shrinkage of chloro-percha can be almost, if not wholly, overcome by packing cotton fibre with the chloro-percha before it has hardened, giving an almost ideal root-canal filling.

J. W. Hagey, Dominion Dental Journal.

Separating Cast and Model.—If the impression material is modeling compound, use a small quantity of machine or other convenient oil on the surface of the impression; if it is plaster, mix a small quantity of common laundry bluing in the plaster for the cast, and the line of separation cannot be mistaken.

I. R. Warren, Dental Hints.

Pulp Capping.—Dry the cavity thoroughly, insert a little thin chloro-percha, distributing to all the walls. Wipe out excess, leaving only a thin coat from which the chloroform should be thoroughly evaporated. Then flow in some thin oxyphosphate cement and let it harden. By this method no pressure is made upon the pulp and the oxyphosphate cement is not brought into contact with thin dentin. Any inflammation of the pulp should be reduced previous to insertion of filling.

G. H. Kittell, Western Dental Journal.

The Electric Current in Fusing Platinum.—When it is desired to melt platinum scraps and retain its ductility the positive electrode should terminate in a short pin of heavy platinum wire resting upon a block of lime, upon which the platinum scraps are heaped. The negative terminal is a rod of brass half an inch or so in diameter and four inches long, mounted in a wooden handle, and which is tipped with a solid nugget of platinum the size of a thimble. Platinum fused by this method is as soft and ductile as new platinum.

L. E. Custer, Dental Century.

Electric Fusion of Platinum to Secure Stiffness.—Scrap platinum is placed upon a carbon block forming one terminal of an electric current, an arc light carbon forming the other. Upon touching the platinum with the carbon pencil the circuit is closed and the current is established in the form of an electric arc. The heat is estimated at 6,000 degrees, which will fuse platinum. Platinum thus fused on carbon possesses all the characteristics of platino-iridium, and will be found useful for many purposes—for backings, crown-posts, regulating apparatus, etc.

L. E. Custer, Dental Century.

Hypodermic Injections.—All hypodermic injections are rendered less painful, and will be more readily absorbed if the active substance is dissolved in saline solution instead of plain water.

International Jour. of Surgery.

The Matrix for Porcelain Inlays.—In 1887 Dr. C. H. Land made mechanically perfect edges possible by devising the metal matrix, platinum preferably because, while it can be adapted with a facility equal to gold it allows the use of high fusing tooth-body. Dr. Land deserves the thanks of the profession for this discovery.

Joseph Head, Items of Interest.

Vegetol, a New Tooth Powder.—Vegetol is a combination of vegetable matter taken from the hard portions of cereals, and the antiseptic chemicals sodium borate and potassium chlorate. It is soluble in saliva, and contains no materials which are injurious to the teeth. It possesses great healing properties for ulcerated mouth or throat, hardening and strengthening the gums by continued use.

Dental Register.

To Remove Teeth from Rubber Plate Without Danger of Cracking or Etching the Teeth.—Boil the plate in glycerin, in a porcelain pan, till it smokes, and the teeth will come away clean and free from discoloration. Put them back in the glycerin to anneal them, and when cool wash in warm water. They will be as bright as when new. The glycerin can be bottled for future use.

Dr. Genese, Ohio Dental Journal.

Carbolized Resin.—

R. Carbolic acid crystals,

Resin āā 3i.

Chloroform..... 3ss.

M.

The application of carbolized resin usually relieves aching in a tooth having an exposed or inflamed pulp. Applied on cotton it protects it from thermal changes and gives rest to the pulp from the exercise of its function. The combination of carbolic acid and resin also inhibits the growth of microorganisms.

L. G. Noel, Dental Headlight.

Spectacles for Dental Work.—Professor Laudolt's convex prismatic spectacles supply a want acutely felt by many dentists. The watchmaker's lens is inconvenient, and as it assists the sight of one eye only, loses the stereoscopic effect obtained by the use of both eyes. Strong convex glasses enlarge the object, but cause eyestrain from the effort necessary to convergence. In Professor Laudolt's spectacles a convex surface is ground on the surface of each of a pair of prisms, which are set in a spectacle frame. The convex surfaces focus, and as a prism refracts light toward its base accommodation and convergence are simultaneously relieved; the object is brought near the face and seen comfortably.

W. Booth Pearsall, British Dental Journal.

The Essentials of a Successful Practitioner.—First, health; second, tact; third, professional skill, conscientiousness and ability; fourth, integrity and moral and personal purity; fifth, a high aim.
Fred. J. Capon, Dominion Dental Journal.

Aluminum Solder.—Six parts aluminum, two parts zinc, four parts phosphor tin. Flux—stearic acid. This solder is sluggish and is pushed along the seam by means of a piece of iron wire in the form of a loop.
Office and Laboratory.

Pulp Protection.—Dip a sheet of asbestos foil into sandarac or balsam varnish; when dry, dip again, repeating until well glazed. From this punch small disks of different sizes. When about to use, dip again in varnish, and place in position over exposed pulp, covering with cement (first drying the pulp and applying carbolic acid).
I. D. Whitman, Ohio Dental Jour.

Pulp Removal.—Dip a small piece of spunk into a mixture of 5 parts alcohol and 1 part formaldehyde, then into finely pulverized cocain. Place over the exposed pulp and press gently with a ball burnisher over a piece of unvulcanized rubber. The formaldehyde toughens the tissues causing the pulp to shrink, making its removal easier.
Dr. Wessels, Western Dental Journal.

Pulp Mummification.—If asked to name the best drugs for mummifying pulp tissue, whether fresh and vital or necrotic and septic, I should unhesitatingly mention silver nitrate first of all, placing some cotton well charged with powdered silver nitrate in the canals, covering it over with cement of gutta-percha until it should dissolve and permeate the entire substance of the tooth.
L. G. Noel, Dental Headlight.

Restoring Broken Down Molars and Bicuspids.—Many badly broken down teeth can be filled and rendered useful for years if screws are properly placed in the roots, and the tooth contoured with amalgam. This also puts them in the best condition for crowning. A healthy, strong foundation should always be the first condition to be brought about. Upon that the structure may be built as circumstances require.
A. Retter, Dental Cosmos.

Softened Dentin Over the Pulp.—The superficial layers of softened dentin are filled with bacterial forms. The deeper layers are not infected; the decalcification precedes the invasion of the bacteria within the dentinal tubuli. Such dentin has evidently not lost its entire vitality; it is often hypersensitive. A thin layer of such dentin, if left over the pulp, impregnated with some strong antiseptic will not cause recurrence of decay. It might even be, as seems to be verified by clinical demonstration, that the once softened but disinfected dentin may reconstruct itself.
H. Printz, Dental Review.

Neuralgia.—Equal parts of benzoin and oil of peppermint rubbed on the affected part, or sprinkled on a cloth wrung out of hot water, in many cases acts like a charm.

Pacific Medical Gazette.

Sensitive Teeth and Dental Operations.—Advise your patients to avoid acids and to use an alkaline wash for a couple of weeks before and while undergoing dental operations, and they will suffer much less from sensitive dentin.

C. C. Harris, Dental Cosmos.

Plaster of Paris Impressions.—Let the patient thoroughly rinse out the mouth with a little milk immediately before the tray is inserted instead of using vaselin or glycerin, either of which is objectionable to many patients.

H. W. Greenfield, Ash's Quarterly.

Root-canal Filling, Sandarac Varnish and Gutta-percha Points.—Work the varnish into the canals, which is done more easily than with chloro-percha. In contracting it sticks to the walls of the canal. Complete filling with gutta-percha points not softened.

B. J. Cigrand, Dental Review.

Pure Drinking Water.—To give distilled water the proper proportions and make it a safe and healthy drink, Thoms has recommended tablets containing each $\frac{1}{4}$ grain sodium sulphate, $\frac{1}{2}$ grain sodium chlorate, $\frac{3}{4}$ grain sodium carbonate, 1 grain magnesium carbonate and $3\frac{1}{4}$ grains calcium bicarbonate.

Northwestern Lancet.

Orthoform.—In cases of violent pains from inflamed pulp lying free, the effect of the application of orthoform is instantaneous, the pain being at once relieved. Orthoform is absolutely without smell or taste, and in its application no precaution of any kind need be observed, as it has no effect upon the intact mucous membrane. *Wm. Rotenberger, Therapeutic Progress.*

Treatment of Alveolar Abscess by Electrolysis.—The fluids of the body being saline, mainly chlorid of sodium, the application of a point of zinc wire into a sinus or fistula with the aid of the electric current, chlorid of zinc is formed in situ, which is forced into the tissues—an ideal method of infusing an escharotic into a confined area.

W. J. Morton, Items of Interest.

The Countersunk Nut in Orthodontia.—The teeth being banded and a bar soldered on the outside of the teeth, a hole is drilled through the bar opposite the tooth to be moved, and counterbored to allow the nut to enter flush with the face of the bar. A bolt is then soldered to the band around the tooth to be moved, passing through the hole drilled in the bar, and the nut turned on. As the bolt comes through the nut by the movement of the tooth, the end is ground down smooth. There is no limit to its use except the ingenuity of the operator.

W. W. Shryock, Items of Interest.

Miscellany.

Protargol.—This is better than any inorganic silver salt yet used. It is a proteid compound, containing about 8 per cent. of silver. Bactericidal power as great as silver nitrate; penetrates deeper; much less painful, not so dangerous to epithelium; can be used much more frequently; not so affected by light; its brown color an advantage for local application. Perhaps the silver nitrate is better for direct action on gonococcus, but for all other inflammations or irritations of ocular mucous membranes, protargol in a five to ten per cent. watery solution is much better for the general practitioner.—*Med. News.*

Calcium Carbide.—An improvement in the manufacture of calcium carbide has been made by a Russian engineer, named Orlovsky, of St. Petersburg, in which the carbide, while still hot from the electric furnace, is placed in a mixture of one part of tar and forty parts of petroleum residues. The object of this treatment is to prevent the absorption of damp and make more regular and slower the generation of the acetylene when in contact with the water. Another process that is also reported in the foreign press, is one that does away with the electric furnace and makes use of the high temperature occasioned by the combination of aluminium with oxygen. This process is the invention of Herr Wolff, of Berlin, and consists of igniting a mixture of lime, carbon and powdered aluminium. The temperature is so high as to melt the lime and cause it to combine with the carbon.

Aluminum Alloys.—Experiments with aluminum alloys are now being made with considerable success by metallurgists in both Europe and the United States. There seems to be a wide range of practical applications for many of these substances. Mr. W. A. McAdams, of Brooklyn, has succeeded in making castings from an alloy of aluminum, copper and tin, which, while having the appearance of aluminum, possess many different and valuable characteristics. The castings from this material are much stronger than the best gray iron castings, and have a much higher elastic limit. The new metal has a specific gravity of 3.39, or less than half that of brass or cast iron, and melts at a temperature of 525 degrees centigrade or 977 Fahrenheit. It can be worked with facility in a lathe, and is about as malleable as brass, while it polishes well, and is a good conductor of heat and electricity. It has a small shrinkage and can be welded by electricity, while it resists nitric and sulphuric acids and mercury. The inventor does not consider that the alloy is as yet perfect, and will continue his experiments, but the tests already made seem to indicate that the material will prove very useful in certain lines of machine construction.—*N. Y. Evening Post.*

Formalin as a Preservative.—In addition to its many other uses as a preservative, formalin can be employed in photographic processes with considerable advantage. It is used to harden the gelatin of films, and it has recently been suggested to prevent the attacks of the mildew fungus on carbon prints. For this purpose a sheet of blotting-paper is dipped in formalin and placed at the back of the print before putting on the backboard of the frame. The vapor will permeate throughout the interior of the frame, and will kill effectually any mildew germs.

Utilizing Carbonic Acid Gas.—A plant has recently been installed at Rouen, in which use will be made of the carbonic acid gas given off during fermentation in breweries and distilleries. M. Louis Meeus, of Wyngthem, has devised a plan to make use of this waste product, which, in the case of one distillery, where 8,000 gallons of alcohol are manufactured daily, amounts to nearly 62,000 pounds in twenty-four hours. This gas is now collected by a system of exhausters, and by means of compressing pumps is liquefied under a pressure of 55 atmospheres, and stored in steel cylinders, carrying 10 kilogrammes each. With these cylinders the gas can be used for any of the familiar processes, such as charging soda water siphons, or producing intense cold, and its manufacture promises to be a valuable adjunct to the factories where the system has been installed.

Snake Bites and Their Treatment.—In an interesting article on the above subject, the following are some of the most important conclusions reached by the author, Dr. B. M. Ricketts, as results of his studies: The copperhead, coral snake and rattle snake are the only serpents in the United States which possess fangs, at the base of which is a sac containing a poisonous fluid. The authentic cases of death resulting from these serpents have been among children. The result of inoculation depends upon the dose and size of the human being or animal. If the death does not occur in a few hours it is the result of other causes and not directly the result of the venom. Over-stimulation from alcohol and other agencies is oftener the cause of death than virus inoculation. The treatment recommended is both general and local. Strychnin nitrate, hypodermatically every twenty minutes, until its physiological effects are produced, or until coma is overcome. The administration of alcohol, digitalis, atropin or nitroglycerin is also regarded as beneficial. The writer advises the local use of a 1 per cent. solution of chromic acid; chlorid of gold or permanganate of potassium may be substituted for chromic acid. Among other drugs he believes jaborandi, administered internally, to be of benefit. Massage of the swollen parts and washing of the stomach are great aids in combating the poisoning.

Cincin. Lancet Clinic.

Scruple is supposed by some, says the *Chemist and Druggist*, to be the diminutive of *scrupus*, a sharp stone, from which its meaning as "a scruple of conscience" would also be indicated; but it is more generally traced to *scripulum*, something written, which was exactly the meaning of the Greek small weight *gramma* (from which the French *gramme* was adopted), although it is not easy to see the connection between "something written" and a small weight.

Dentistry in Belgium.—The Government of Belgium is considering a bill advocated by the majority of physicians, to suppress the diploma of dentistry, and only allow the practice of dentistry to qualified physicians as a branch of the medical sciences, like laryngology, ophthalmology, etc. Beco, the chairman of the special committee, enumerates, among the reasons for this step, the overcrowding of the medical profession and the necessity for considering dentistry as an important and lucrative specialty in the domain of general medicine. The standard that has hitherto been required of dentists has been so low that some change is imperative, and suppression of special diplomas to dentists seems the simplest and most practical solution of the question under the present circumstances.

Jour. Amer. Med. Asso.

Lead Poisoning.—A curious survival of an ancient, but we had supposed practically extinct, cause of lead poisoning, has recently put in an appearance in Paris. Symptoms of mild plumbism have been rather common and wide-spread of late in the French capital, and for some time the profession was quite at a loss as to either the character or cause. A few, however, proved so strikingly characteristic, that an energetic investigation was set on foot as to the source of the lead salts, and it was found that the bakers of the city were in the habit of using old building timber, floors, etc., for the purpose of heating their great ovens, and by the persistent use of large quantities of this sort of dust-containing material it is believed not merely lead, but also copper and creosote has found its way into the interior of the ovens. Loaves which are then placed in the ovens manage to rub off enough of these deposited materials from the floor and walls to, by long-continued ingestion, set up accumulation poisonings in those who eat them. The older form of this sort of contamination, it will be remembered, used to be the ancient Dutch oven, where the fire was lighted in the oven itself, and then after a sufficient heat had been obtained, the ashes swept out and the loaves put in their place. In this way much larger amounts of lead and copper were introduced and some of the poisonings were very severe, so much so that the use of such fuel was forbidden by law in many Continental cities. The regulation has now been revived by the Paris Council and extended to the use of such wood or boards anywhere about ovens or furnaces.

Journal American Medical Association.

To His Delinquent Patient.—

If I should die to-night—
And you should come to my cold corpse and say,
Weeping and heart-sick o'er my lifeless clay;
If I should die to-night—
And you should come in deepest grief and woe,
And say, "Here's that \$10 that I owe,"
I might arise in my great white cravat
And say, "What's that?"

If I should die to-night—
And you should come beside my corpse to kneel,
Clasping my bier to show the grief you feel;
I say, if I should die to-night—
And you should come to me, and there and then
Just even hint 'bout paying me that ten,
I might arise a while—but I'd drop dead again.

—*Gross Medical College Bulletin.*

Bacteria in Aseptic Operations. DOEDERLEIN.—Instead of estimating by the results of the operations, the degree of asepsis secured, this Tübingen professor made comprehensive tests in "aseptic operations" lasting over half an hour, sowing scrapings of the wound, etc., at intervals. Cultures constantly developed, even when extreme efforts were used to realize asepsis, such as a damp sheet spread above the operating table, to collect the germs in the air, etc., and the operator in hood, mask, and gloves on, his hands like a negro's from the effects of permanganate. His conclusions are that the bacteria in the wounds are derived from the hands of the operator, from the underlying skin, as the disinfected epidermis scales off in the course of the operation proved among other facts by the almost complete absence of bacteria in tricot gloves after a long operation, if thin rubber gloves are worn under them. But instead of advocating the wearing of impermeable gloves during aseptic operations, he asserts that absolute freedom from bacteria is an unattainable ideal, and we might as well abandon our attempts to realize it beyond what is already accomplished in the ordinary well-managed aseptic operating room. On the other hand, we must bend every effort to keep our hands free from pathogenic germs, wearing impermeable gloves in operating and examining septic or infected cases, and supplementing this precaution by assisting the organism to resist the ordinary germs that are constantly present, by every measure known to date, or that is yet to be discovered. In this direction lies the field for future achievements.

Jour. A. M. A.

Laborde's Method of Artificial Respiration.—At the session of the French Academy of Medicine, October 3d, Laborde mentioned fourteen new cases of the restoration of persons apparently dead by long repeated tractions upon the tongue. In one-half of these instances the tractions were kept up from twenty to sixty minutes. One patient was worked over in this manner for three hours before he could be brought back to life. The exact time during which a patient may remain apparently dead and then be resuscitated has never been determined, either by experiments upon animals or by the treatment of the living, but from the results here quoted it is evident that resuscitation is possible after a much longer interval than one might at first suppose. By the old methods, when asphyxia had lasted more than five or six minutes, respiration could not be reestablished. By tractions upon the tongue, however, persons have been brought back to life who were thirty or even forty minutes under water.

The Food Preservative Danger.—Referring to the fact that for some time past the dangers of the use of antiseptics in the preservation of food have been increasingly apparent, and that boric acid, salicylic acid, and many other chemicals of a more or less potent nature have been discovered in food stuffs of various kinds, and have in several instances formed the subject of prosecutions, the *Medical Press* remarks that it can hardly be said that the judicial attitude with regard to this form of adulteration has been yet clearly and authoritatively defined. The scientific knowledge of the agency of bacteria in putrefaction is of recent growth, and the subsequent practical applications of the newly-born science have, in many instances, introduced into the ethical life of the community problems that await a satisfactory solution. So far as the addition of chemical preservatives is concerned the greatest offenders have hitherto been the milk and the butter man. As a general rule the drug chosen for their purpose is comparatively harmless, but a report comes from New York of the use of a deadly poison, arsenic. The fact was brought to light by the poisoning, in Brooklyn, of nine persons, two of whom are not expected to live. The occurrence was traced to milk, an analysis of which revealed the presence of arsenic. As the outcome of further investigation the dairyman confessed that he used the poison systematically in order to keep the milk sweet. Medical men generally, observes our contemporary, will do well to bear in mind the fact that some cases of obscure illness may be due to food preservatives. If the milk man is going to embark in a wholesale round of chemical experimentation the community will find a fresh terror added to their daily life.

Pharmaceutical Journal.

Toxic Action of Chemically Pure Water.—Absolutely pure water is a poison. Hans Koeppe, in the *Deutsche Medicinische Wochenschrift* of September 29th, discusses the subject fully. It has been noticed that quenching one's thirst with ice or snow in the very high altitudes has been disastrous, and this it is claimed is because the ice when dissolved is pure water. Absolutely pure water contains no salts. Koeppe tells us that the water from dissolved ice in high altitudes is purer than distilled water. The poisonous character of perfectly pure water comes from its property of extracting salts from animal tissues and causing them to swell up by inhibition. Koeppe mentions spring at Gastein which has always been known as a poison spring, the water of which on analysis is proved to be absolutely pure, more so than distilled water. But if these claims are true, and they probably are to some extent, there is no cause for worry, as absolutely pure water is a thing which is not likely to cause us trouble. The practice recommended by some, of washing out the stomach with distilled water, or drinking it, might be injurious, although the latter, if taken with meals, would not do harm since the salts eaten would supply the deficiency.

Journal American Medical Association.

The Influence of Alcohol on Muscular Work.—Destree (*Quar. Jour. of Inebr.*, January, 1899) has made a number of experiments to determine whether more work can be accomplished with alcohol than without it. The results obtained were uniform, and clearly showed that:

1. Alcohol has favorable effect on the work product whether the muscle is weary or not.
2. This favorable effect appears almost immediately, but is very transitory.
3. Immediately afterward alcohol has a very decided paralyzing effect. About a half-hour after taking alcohol the muscular power reaches a maximum that subsequent doses increases with difficulty.
4. The paralyzing effect of alcohol outweighs the momentary stimulation, so that the total work-product obtained with the use of alcohol is less than that obtained without. In other words, alcohol is a deceptive means of dulling the sense of fatigue, but its action is momentary, and in the end injurious, the paralyzing effect upon the nervous system increasing rapidly, and with such force that any momentary good effect cannot counterbalance them. Similar experiments with tea, coffee, and kola showed that the stimulating effect of these drugs, while less marked than that of alcohol, is continued longer, and is not followed by a paralyzing effect, as is the case with alcohol.

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ORIGINAL COMMUNICATIONS.

THE USE OF TRICHLORACETIC ACID.*

By J. S. Ashbrook, D.D.S.

Derivation.—Trichloroacetic acid ($C_2HCl_3O_2$) is prepared by the oxidation of chloral hydrate by means of nitric acid. It consists of colorless, rhombic deliquescent crystals. It belongs to a group of three acids, the other two being the monochloroacetic and the dichloroacetic acids, and the difference in their composition is due to the proportions of chlorine they contain. They have similar properties.

Dental Uses.—Trichloroacetic acid is employed in dental practice as an escharotic in the treatment of pyorrhœa alveolaris, on account of its destructive effect on pus secreting surfaces of the alveoli of teeth, for which purpose a 10 per cent. solution is applied. It is also employed for the removal of vascular tumors of the pulp, and hypertrophy of the margins of the gums and epulis. Dr. Kirk speaks of using this acid in the strong solution of about 90 per cent. for the removal of such growths. Trichloroacetic acid has also a solvent effect on calculi upon the roots of teeth, a 10 per cent. solution in water being recommended, and has also been employed on the overhanging and resistant gum of third molars. A 1 per cent. solution has been successfully employed as a mouth wash for its astringent and stimulating action in inflammations and ulcerations. It is also used in combination with pyrozone in the treatment of alveolar pyorrhœa, and in such a solution, as well as alone, its effects have been remarkably satisfactory. Trichlor-

* Read before the Odontological Society of Western Pennsylvania, December 12, 1899.

acetic acid may be combined with any suitable alkaline solution, such as soda or magnesia, when it is desirable to limit its action. It has a peculiar power to soften and remove sanguinary deposits, and it acts without injury to the teeth or soft tissues.

Diluted with water to a 3 per cent. solution it is an excellent local astringent and stimulant. Dr. Harlan recommends it for removing the overlying gum for third molars, as it destroys the tissue without hemorrhage or subsequent soreness. Trichloroacetic acid is also employed to gain access to roots of abscessed teeth through a fistulous opening, one crystal, followed by more, being placed in the fistula; it is also used for removing hypertrophied gums and gum polypi.

Trichloroacetic acid is a stimulant, refrigerant, antiseptic, astringent, alterative and an escharotic.

As a stimulant it is most useful in treatment of receding gums; some claim it will cause the gum to recede. This has not been my experience. I know of one case in particular where the gum had receded fully one-eighth of an inch; after two weeks' treatment the gum was almost in its normal position, and has remained so for eight months. In the treating of gum overhanging lower wisdom teeth it is most valuable, as you know these cases often cause great trouble, becoming so inflamed that the face is swollen, making mastication difficult. Two or three applications of this acid will, in most cases, cure this severe condition, the first application giving instant relief. In this case it acts as a refrigerant, antiseptic, astringent and escharotic.

After the removing of salivary calculus, which collects in such large quantities on the lower anterior teeth, causing them to become very loose in their sockets, one application in most cases will harden the gums and prevent the accumulation of the calculi for a long period.

In the treatment of devitalized pulps it is especially useful as an antiseptic, applied on the end of a broach just before filling permanently. In cases where you have a large apical foramen, you can readily see its value.

In the filling of cavities, where the gum overhangs the cavity, making it difficult to prepare on account of the bleeding, apply a little acid, and proceed without further trouble.

Last, but not least important, is its use in the treatment of a fistula from alveolar abscess. With cotton carefully placed around a Donaldson broach, saturated with the acid, you can reach the

bottom, and in most cases the fistula disappears after two applications.

In all the above cases I use the pure acid, in small quantities. In forty-eight hours all trace of its action has gone, except the good results; the mucous membrane peeling off, as it were, and a new layer formed.

A number of physicians have informed me that they use it, and find it valuable in all the properties I have mentioned.

Trusting that some of you have had as good results as these above-mentioned, I leave the subject with the Society for discussion.

CARE OF THE DECIDUOUS TEETH.*

By Dr. J. A. Calhoon.

In presenting this subject, I make no pretense to original investigation of the scientific questions connected with it. My subject is "Care of the Deciduous Teeth." In addition to the scientific term, deciduous, applied to the teeth, we have the names, milk teeth, baby teeth, first teeth and temporary teeth. Personally, I prefer the latter, as being the most appropriate term of comparison with the permanent teeth.

To be systematic, the subject is divided into three primary topics, each having two subdivisions, as follows:

First.—Development. Formative period and eruptive period.

Second.—Use. Mastication; preservation of the proper relation of the jaws for their development and the reception of the permanent teeth.

Third.—Care. During eruptive period; during useful period.

This arrangement may seem too comprehensive for a brief paper. To exhaustively treat each division would certainly take more time than can be given to one paper, as well as demand much greater ability than is possessed by the writer.

The first subdivision of the primary topic, development, is the formative period, which begins about the seventh week after conception. From the time of conception the mother should devote herself to securing the perfect physical and mental devel-

* Read before the Odontological Society of Western Pennsylvania, at Pittsburg, December 12, 1899.

opment of her offspring. On the mother, in a very great measure, depends the future well-being of the child. The food she eats should be such as will replace the drain on her own system, and also supply the necessary material for the development of the growing embryo.

While the great majority of people may think that it is not the business of the dentist, yet I believe it to be within the sphere, and also to be the duty of the family dentist, when asked by mothers to advise them as to the diet best suited to secure the development and perfection of the teeth.

The second phase of development is the eruptive period, which begins with the eruption of the first tooth and continues until the last temporary tooth has made its appearance through the gum. This, as all know, is a most critical period in a child's life. The nervous system is under high tension, this increasing the little one's susceptibility to disease and any physical disturbance. The greatest mortality among infants occurs during this period.

At the beginning of this period the practical services of the dental surgeon should begin. It will never be known how many infants have suffered and died for lack of a few judicious strokes of the lance by a competent dentist or physician.

The Uses of the Temporary Teeth.—First, for mastication. Although not so many, so large, nor so strong, as the permanent teeth, still the temporary teeth are sufficiently numerous, and strong enough, to masticate the food proper for a child, and are as necessary for the accomplishment of the purposes of nature as the permanent teeth are to supply the demands of more mature years.

To have perfect health, it is necessary to have perfect digestion; to have perfect digestion, it is necessary to have the proper food thoroughly masticated, in order that the digestive organs and fluids may prepare the food for assimilation. If the teeth decay and break down, or are extracted too soon, the child is deprived of organs whose integrity is one of the first requirements for the promotion of perfect health.

A second use of the deciduous teeth is the preservation of the proper anatomical relations of the jaws to secure their harmonious development, and sufficient space for the eruption of the permanent teeth. The early loss, by decay or extraction, of the temporary teeth is a very frequent cause of irregularity of

the permanent teeth, with the evil effects which follow. Hence the great importance of preserving the temporary teeth until the permanent ones are ready to take their places.

This brings us to the third primary division, which is the subject proper of the paper.

Care of the Deciduous Teeth.—Perhaps our brethren of the medical profession will think we are intruding on their domain when we assume to treat the dental disorders of infancy and early childhood, but I believe the time is coming, perhaps it has already come to some present, when the dental surgeon will be called in to relieve the pain and general systemic disturbances caused by the persistent refusal of the overlying tissues to absorb as rapidly as the pulp deposits the dentine of the roots. The treatment of these conditions must often be systemic, as well as surgical. While the systemic treatment may more properly come under the care of the physician, a dentist should be able to give relief by proper local treatment; but especially is a dentist in his sphere when he gives relief surgically by lancing the gums. In those frequent cases, where tumefaction and inflammation of the gum result in systemic disturbance, the services of a competent dentist, able to judge of the needs of the case, are invaluable. Lancing gums often relieves the pressure on the highly vascular organ, the pulp, which is building up the root of the tooth faster than the gum tissue can be absorbed. When I speak of lancing, I do not mean a mere scarifying of the gums, but a cut or cuts sufficiently deep to reach the imprisoned tooth, and long enough to relieve the whole crown. There are many cases on record where judicious lancing has given immediate relief; babes with a high fever, and in a restless, sleepless condition, after lancing, often become quiet and fall into a sound, refreshing sleep, with an entire abatement of febrile symptoms. Hence I believe in judicious lancing, notwithstanding the theory of some that it is contra-indicated in cases where the gums are liable to heal before the tooth presents, for the assigned reason that the cicatricial tissue forming the scar will be harder to absorb than the original gum. I was considerably surprised, as well as amused, by the objection to deep lancing offered by a prominent physician, with whom I was conversing upon this subject; namely, that the crown of the temporary tooth, being soft, the contact of the lance would injure it.

For a more extensive and specific treatment on the subject

of the use of the lance in this class of cases I refer you to an illustrated article by Dr. E. C. Kirk, in the *Dental Cosmos*.

We now come to the last subdivision, the care of the temporary teeth during the useful period, or after eruption.

Here we cannot be accused of encroaching on the physician's territory.

The one popular idea among parents, that there is no use to do anything to save the first teeth, as they must soon be replaced by others, is, I am glad to know, disappearing, and parents are becoming more enlightened as to the use of the temporary teeth and the necessity for saving them in as good a condition as possible until they are supplanted by the permanent set. We should not stop with the parents in the matter of education, but teach the children also the importance of taking care of the first, as well as the second teeth, and how to do it. That it will need something more than the meagre information contained in the school physiology is evident to any dentist who has examined them.

The use of the tooth brush should be taught as early as possible, the nurse or mother applying it until the child can do so for itself. Of course, we all advise parents to bring their children early for examination, even before there is any sign of decay, especially before there has been toothache.

For many ideas on the practical care of the teeth I am indebted to an excellent article in the *Dental Cosmos* of February, 1884, by Dr. S. G. Perry, on "The Care of the Teeth to the Fifteenth Year."

When a little patient is brought into the office for the first time, it is usually with a great deal of fear from the numerous accounts they have heard about what a horribly painful thing it is to have anything done to the teeth. The first thing we need to do, is to gain their confidence, using no deception, but by our gentle, assuring manner. When it is possible, the first sitting should consist of little more than an examination, and nothing that will give pain. When filling becomes necessary, there should be no pain when possible to avoid it, even though the cavity be imperfectly excavated. I always dread to have a little patient, from three to five years old, with an aching tooth; for in perhaps the majority of those cases the only remedy is extraction, although I use my utmost effort to preserve them until the permanent teeth are sufficiently advanced to preserve the necessary space for their regular eruption. Especially should we try to save

the second molars until the first permanent molars are in place. If the crowns cannot be saved, allow the roots to remain as long as they will, or as long as is necessary to keep one permanent tooth from crowding into the space that should be occupied by another.

We should use our utmost effort also to save the pulps alive, for the roots of pulpless teeth do not absorb, and hence interfere with the physiological process of disposing of the temporary teeth, and thus hinder the free eruption of the permanent ones. Dr. Perry speaks of destroying the pulps, when necessary, in the usual way. I suppose he means by the use of arsenic. I have always considered that a rather dangerous practice, on account of the large apical foramen of the temporary teeth and the danger that the arsenic may go beyond the limits of the roots.

Where there are cavities on adjoining proximal surfaces that are broad and shallow, and sufficient excavation to retain each filling separate would cause pain or endanger exposure of the pulp, I do not hesitate to fill them both as one cavity. In this kind of a filling gutta-percha is perhaps the best filling material, on account of its elasticity.

The materials most suitable for filling the temporary teeth are those most easily and quickly manipulated; those, of course, are the plastics, amalgam, gutta-percha and the oxyphosphates. Probably I have made a mistake in not including tin; but in most cases I find it a sufficient tax on my skill to get the cavities filled with one of the plastics before they are flooded with saliva.

Before closing, I will simply refer to an article in the October, 1891, *International Dental Journal*, by Dr. E. A. Stebbins, on the "Value of Argenti Nitras as a Therapeutic Agent in Dentistry," in which he records excellent results from the use of this agent. It should be a great help in the treatment and preservation of the temporary teeth.

RANDOM THOUGHTS AND PICKINGS.*

By R. B. Cummins, D.D.S.

Few of us realize the wonderful privilege of living, the blessings we possess, the extent to which we can make ourselves what we wish to be. We can own the Universe if we desire and the first thing for a member of the dental profession to

*Read at December, 1899, meeting of the Odontological Society of Western Pennsylvania.

do, is to fall in love with his work, and all things shall be added unto him.

Who ever heard of an artist producing a great picture who did not fall in love with his ideal, who did not dream of it at night, did not constantly see the vision during his waking hours, did not return again and again to his canvas each time finding room for improvement, adding a touch here and there, working with tireless zeal to reproduce the beauty of the picture photographed on his brain?

Walk fast and the crowd will make way for you; but in order to do so easily, we must lay aside every weight and habit that hinders, and press forward toward the goal which will make us eminently practical.

One of the most favorable signs of the future prosperity and usefulness of this society is to see the large number of **young graduates** who are joining its ranks. We bespeak for you a broad-minded and liberal policy that will always keep you active and useful in its transactions. To isolate one's self from the profession is to stop growing and lead a dull as well as a selfish life. Our duty is to make ourselves useful and thus our lives interesting. Duty embraces man's whole existence. Don't be too sensitive. Don't harbor thoughts of being slighted and imagine the honors of office are not coming your way often enough. Politics and ambition will always be asserting themselves. Remember that some are more suited to be leaders than others, and that we can help to fill our society with life, energy and interest, and yet keep the cares and responsibilities of office outside. Every one must conquer himself; and we may do so, if we take conscience for our guide and general. No one really fails who does his best.

When joining this society you virtually said that you would regularly and faithfully attend the meetings and make it a matter of conscience to take part in the meetings. Now when the executive committee asks you to perform some duty, *do it*, and banish the thought that they are doing it to honor or flatter you. That is not their mission. If we understand the duties of those who secure papers, talks and clinics, arrange program and secure place of meeting, it is not an easy task by any means. You can lighten their burden greatly by promptly doing what they ask you, no matter what your ability or experience.

We must not be discouraged if a lucrative practice be slow

in coming, nor puffed up if it comes quickly. We often complain of the nature of things when the fault is all in ourselves. The practice of dentistry is made up of small things. Great operations without looking well to the smallest things about them means ultimate failure. One secret of success is to do our best without one thought of becoming famous. There is no substitute for thorough-going, ardent and sincere earnestness in practice. Without this divine spark of enthusiasm a practitioner will never realize the pleasure and profit that there is in a practice. Scarcely any of us have lived up to the highest point of our knowledge and ability, and if we stimulate one another to do that, we have accomplished, perhaps, as much as if we had presented new ideas.

In this the smokiest city that ever smoked, you can, by reading and thinking, enjoy the pleasure of the country. The poet can transport you, as if by enchantment, to the fresh air and bright sun, to the murmur of woods and leaves and water, to the ripple of waves upon the sand, and enable you, as in some delightful dream, to cast off the cares and troubles of life.

ABSTRACTS AND SELECTIONS.

THE STORAGE BATTERY IN THE DENTAL OFFICE.*

BY G. E. LOB, M. E., CHICAGO, ILL.

The storage battery! A doubting smile will cross a good many dentists' faces when they hear any one advocating the use of such cells after the disappointment it has caused to many of them. Leaking jars, burned carpets, broken plates and lack of current just at the instant when it is mostly needed, have at times exasperated even the best natured operator and made him go back to his old foot engine, because it is always ready for work and will not give out at the most inopportune moment. Nevertheless, since electricity has become such an important factor in the dental office and its use being bound to spread more and more, so that even the practitioner in the small country town, where no light or power circuit is available, wants to use it, the storage battery should deserve some attention especially since its form has been improved and through better knowledge ways have been devised to simplify its handling.

* Read before the Chicago Dental Society.

Naturally, men handling electric machines and apparatus should want to understand the construction of the different apparatus and the principles of their working—the “how and why.” Having this knowledge, success depends upon watching and doing, or, more simply, “know how” and “do it.”

Therefore, a brief description of the construction of the storage cell, or accumulator, and the principle upon which it works, will be in order. Electric cells, or when combined in any number so as to form a single source called electric batteries, are divided in two great classes:

I. Primary batteries.

II. Secondary, or storage batteries.

Primary batteries are generators of electricity through the chemical action which takes place between certain different substances when brought into contact with each other, and independently from any outside electric current. To make this plainer, take the simplest form of a primary cell, a glass beaker filled with water, to which has been added a certain quantity of sulphuric acid, into which a strip of copper and one of zinc has been set, and connect these two metal strips by a copper wire. Immediately a strong chemical action will take place, showing an electric current flowing from the copper strip to the zinc through the conducting wire. The chemical action is as follows: The water is decomposed into hydrogen and oxygen. The hydrogen collecting on the surface of the copper and the oxygen combining with the zinc, forming oxide of zinc, which then combines with the sulphuric acid, forming sulphate of zinc. The principal seat of chemical reaction is at the surface of the zinc, which is consumed by oxidation, while the copper acts as a conductor and is not consumed. Hence, electric movement is from higher to lower potential, and the same law applies to the energy of chemical reaction, in common with other forms of physical energy, and since the electrical energy of the cell is found to be strictly proportionate to its chemical reaction, it is assumed that the electric current originates at the surface of the zinc and flows through the fluid to the copper.

In the absence of external connection between the metal strips it is evident that the difference of electric potential would immediately become equalized and the current cease, but when they are connected by a conductor the current finds an outlet through the copper and flows back to the zinc through the ex-

ternal circuit ; chemical action is thus sustained and the current becomes continuous. The law of the conservation of energy requires the expenditure of energy in one form as a condition of the production of the same amount in another form. Hence as chemical energy is the only energy expended in the battery the natural conclusion is that it is the source of the electric energy or current generated.

Secondary or storage batteries are not generators of electricity itself, but, as their name indicates, only receptacles of electric energy, which is carried to them from an outside generator and stored in the cells in the same way as we store up solids or liquids in cans or bottles. Thus electricity is stored in a manner which is impossible with any other power. While stored, the energy is dormant, and can be retained for long periods with very little loss.

A storage cell consists of three principal parts--the plates, the electrolyte or liquid and the containing jar or box. The plates are divided into two kinds, positive and negative, and a set or group of these is commonly known as an element. The element is placed in a containing jar or box, which is then filled with a solution or electrolyte. The storage of energy in electric accumulators is accomplished by means of chemical action, produced in this case by the passage of an electric current through the element and electrolyte. The lead plates which form the element must be so constructed as to present a large surface upon which the chemical action may take place, as the amount of energy which can be stored in a cell depends upon the capability of the plates to take up the chemical action. This is termed the capacity of a cell.

The positive plates consist of lead upon which a coating or covering of peroxide of lead has been formed, while the negative plate is pure lead, the surface of which is of porous or spongy formation. The peroxide of lead and the spongy lead, respectively are the portions of the plates which are subjected to the chemical action, and are consequently called the active material. The electrolyte used with all storage batteries is sulphuric acid diluted with water in the proportion of one part of acid to from five to ten parts of water, according to the type of cell.

The positive and negative plates of each cell are arranged alternately in a group, all the plates of like denomination being

connected together in multiple. Insulating pieces or separators are provided to keep the plates apart, so that when they are connected respectively to the positive and negative poles of a source of electricity, the current can only pass from one to the other by flowing through the electrolyte.

As to the chemical reaction that takes place in a storage cell many different theories have been advanced, which would be too long to enumerate here. Joseph Appleton, in his "Storage Battery Engineering Practice" explains it in the most concise and simple form, by saying: "The chemical condition of the plates and electrolyte differs when charged and discharged. When the cell is fully charged the positive plates have a coating of peroxide of lead, the negative being porous or spongy lead as described before, and the electrolyte is of its full strength or specific gravity. During discharge, that is when the positive and negative poles of a cell are connected through an external circuit, an E. M. F. is set up in the cell, a current flowing into the circuit from the positive plate.

The chemical action which takes place during discharge is as follows: The sulphur radical in the electrolyte enters into combination with the active material on both plates forming sulphate of lead, the specific gravity of the electrolyte being correspondingly reduced. When all the active material has been acted upon in this manner the cell is discharged, for an equilibrium has been created between the two plates and the electromotive force has fallen to zero.

When a cell is being charged the chemical action is reversed. The current enters the cell at the positive plate, passing through the electrolyte to the negative. The passage of the current through the electrolyte decomposes it, oxygen and hydrogen gas being given off. The oxygen is given off at the positive plate and converts the sulphate of lead into peroxide of lead again, the sulphur going back into the electrolyte; the hydrogen which is given off at the negative plate enters into combination with the sulphate of lead, reducing it to pure lead, the sulphur returning to the electrolyte and increasing its specific gravity. This action restores both plates and electrolyte to the original condition of full charge. If the charging current is continued after the cell is fully charged, that is when all the active material has been converted to peroxide of lead and spongy lead respectively, no further effect will be produced except to decom-

pose the water, the resulting gases pass off through the water, giving it a milky appearance. This indicates that the cell is fully charged. Continuing the charging current beyond this point, that is over-charging the cells at the proper rate, does no harm to the plates, but the energy represented by the current is wasted.

When the cell has been properly charged the positive plate is of a brown or deep red color, while the negative is a slaty gray. Naturally the chemical action can take place only at a certain rate, depending on the amount of active material and the construction of the plates. If it is attempted to give to or take from a cell too much current, the efficiency and durability are affected.

Generally speaking, there are two distinct methods of preparing the active material of storage battery plates. One of these consists in applying mechanically some material to the surface or exterior of a lead conducting plate or grid, which is either active itself or can be converted into active material by a process of electrical or chemical formation; the second method consists in treating or forming electrically or chemically the surface of a lead plate, which has been designed to present a large area to the electrolyte, whereby the surface is converted into active material.

The first method is commonly known as the pasted type of cell, although the active material is not always supplied in the form of paste. The second method is known as the Plante type, so called because Gustave Plante, a French electrician, was the first to utilize practically the electrical method of forming the plates without the use of applied material.

The larger proportion of storage cells now in use are of the lead accumulator type mentioned so far, but there is a second class of storage cells made, which are called bimetallic accumulators, and whose elements consist of two different metals, the electrolyte being a salt of one of the metals. The principle upon which the work is the same as in the lead cells.

Naturally, lead accumulators are very heavy, and this being a great objection to their use in certain instances, a combination of elements of less weight was sought for, and the bimetallic cells were produced, but they never have been used to any great extent. The electro-motive force in them is somewhat higher than that of the lead accumulator, but owing to the danger of

local action on open circuit they will not retain their charge for more than a few days, while a lead accumulator will scarcely lose twenty-five per cent of its charge in as many months; besides, the tendency of reducing the weight of these cells must necessarily weaken their construction, and on this account their life will be much shorter. About two years ago a small battery of this class was shown at the different dental meetings in connection with a small mouth lamp, and special stress was laid upon its high electro-motive force and its small weight. The battery has disappeared from the market, and those who invested money in buying it have probably found out by this time that the whole appliance was a failure.

It will be seen from the foregoing description that the storage of electrical energy is entirely different from the storage of any other form of energy. A quantity of electricity cannot be stored or accumulated in a vessel or reservoir, because it does not exist in a tangible form. We are able, however, to make the electric current perform work in shape of chemical action and afterward by setting up certain reactions can reproduce the current stored. As long as the materials used are free from impurities and the chemical action is continued until completed, there is practically no limit to the time which may elapse between the storage of electricity with its contingent chemical action and the reaction, which, practically speaking, sets free again the electrical current.

Having considered the principles upon which the storage of electrical energy depends and noted the various elements which are necessary to make up the complete cell or storage battery, we will examine its application with special reference to dental practice.

The first and most common application of the storage cell in dental offices is to furnish the necessary power to run the dental motor, where no other current or no day current can be obtained. In order to keep the number of cells necessary to produce a certain amount of power, required for this kind of work, as low as possible, special wound motors must be used, which will work under a very small pressure. The unit of power in all electrical problems is the watt, which is equal to the voltage of electro-motive force multiplied by the amperes or intensity of current. 746 watts represent an electrical horsepower. To produce such a horse-power, or any fraction of it,

it will not make any difference if the voltage is high and the amperage low, or vice versa. 93.25 watts or $\frac{1}{8}$ horse-power may be produced by a current of 110 volt pressure with only 0.85 amperes or by 4 volts with 23.34 amperes, or any other combination giving the total of 93.25 watts, provided a motor can be constructed whose windings will be able to carry the current and in the same time offer sufficient resistance to the pressure, without being too clumsy in appearance.

Therefore, the resistance and carrying capacity of the wire on the motor are the main points to be considered. Necessarily with a low voltage the wire must have a large cross sectional area in order to carry a current of high intensity without overheating the conductor, but as such a heavy wire has also a very low resistance and quite a large number of feet will be required even for the lowest voltage, practical reasons forbid to go in the construction of a battery motor beyond certain limits. Now the question arises, what power is actually needed to run a dental engine? I know, from everyday experience, that the large majority of dentists are laboring under a very wrong impression with regard to this point. Their judgment being based on the ratings and sizes of the ordinary motors coming under their eyes, most of them think that about one-fourth horse-power would be needed for a cord outfit and laboratory work and perhaps one-eighth horse-power where the power is taken directly from the armature shaft. The reason for this is, that nearly all the small motors on the market are highly overrated and when it comes to an actual test the power developed will produce only fifty per cent or less of the indicated power. If the electrical motor is properly constructed about one-sixteenth horse-power will be sufficient for cord outfits and the running of a lathe head and one-fiftieth horse-power for a motor connected directly to the cable and handpiece. Of course the latter form will be the most preferred where a storage battery has to be used, as being the most economical on account of the smaller number of cells needed.

The next application of the storage battery in dentistry is to furnish light and heat, and in both cases more satisfactory results are obtained than from any other source of electricity.

The small mouth lamp or the somewhat larger mouth illuminator will give a steadier light and will last longer than when operated from an incandescent light circuit through a rheostat,

or from primary cells, as the current is of absolute uniform flow and no burning out of the lamps and going down of the light can occur through variation of pressure.

Heating instruments, such as root driers or hot air syringes where with a low voltage a current intensity of not over two or three amperes is required, may be as well operated from the incandescent light current through a rheostat as from the storage battery, but the electro-cautery where with the low pressure a current intensity of from eight to twenty or more amperes is needed no rheostat can perform this, and only a motor generator—a quite expensive machine—or the storage battery will answer the purpose.

Outside of the before mentioned apparatus and instruments the storage battery can be used for any other purpose where the electric current is wanted, provided its cost is not too high and the same result can be obtained in a cheaper way, as for instance in cataphoresis.

. The efficiency of a storage battery depends to a great extent upon the proper selection of the cell, best suited for the work required; its care and maintenance. In early days of storage battery work this was ignored and many of the failures which have been recorded are traceable to this account. The general practice was to consider a storage battery simply as a piece of apparatus to store up electrical energy for any purpose, irrespective of the character of the work, the classification being nothing more than good, bad or indifferent, with very little of the first. Modern practice has, however, changed this and it is at last understood that there are many types of cells, and that a cell which can run a small motor need not of necessity be the one which should be used for heavy cautery work or to run a large motor.

In the dental office the selection of the cell depends in a large measure upon the way it can be charged. Where a commercial current is available which can be brought right in the office and the charging can be done as often as desired a cell of fifty ampere hour capacity will be sufficient for small motor work. If a larger lathe motor and heating instruments are used larger cells of about double the ampere hour capacity will be needed. Usually portable batteries in covered wooden boxes are preferred on account of their neater appearance, but from a practical point of view the open glass jar is by far the better,

because its contents are always open to inspection and the condition of the plates and electrolyte can be watched.

The cells should be placed in a dry, well ventilated place, not too near any heater and not too far—that is over twenty feet—from the apparatus operated by them and the conducting wires used must be as heavy as possible to reduce their resistance to the flow of current. This is a very important point to be observed, as many batteries which did not furnish sufficient current to give the motor its full speed, were found upon inspection to be placed in a distant cellar or laboratory connected to the motor with ordinary No. 16 or No. 18 lamp wire, while when this was replaced by No. 10 or No. 12 wire the motor worked perfectly.

In dental practice the storage battery should always remain in its original place, and not be removed at all. The old method of sending out storage cells to be recharged at the electric light station or any other electric plant is impracticable and in most cases disastrous to the jar and plates. If the expressman handling the cells does not break them on his way to the charging place the local electrician, or as he prefers to be called the expert electrician, in a large majority of cases, especially in small towns, has very little, if any knowledge of the charging of storage cells, and either by reversing the poles or by sending too strong a current through them, will destroy a battery that with proper care and attention probably would have done good service for several years.

For the above reason storage batteries should be charged right in the place where they stand, and the charging current brought to them, so that it can be done without their removal. This brings us to the question which current is suitable for charging storage cells and how it is to be done. Only a direct continuous current can be used for this purpose, such as furnished from a direct incandescent or arc light circuit, from a small dynamo, a primary battery or a thermo generator.

No charging can be done from alternating currents. In charging an accumulator only a small part of the E. M. F. required to force the current through the cell is expended in overcoming the resistance of the plates and electrolyte; the remainder is expended in overcoming the E. M. F. of the chemical action of the cell. It follows then that if the applied E. M. F. be just equal to the E. M. F. of the cell no current will flow, so

that the E. M. F. of the cell itself may be considered as a counter E. M. F. opposing that of the charging current—in other words the E. M. F. of the charging current should be about twice as high as that of the cells to be charged. On the other hand the amount of current charged per hour should not exceed what is called the normal charging rate, and which differs according to the size of cells. The normal rate of charge for small accumulators is about ten hours, and if the cell has a capacity of fifty ampere hours not more than five amperes should be charged, or ten amperes for a 100 ampere hour cell. Thus in using a direct incandescent light circuit its voltage must be cut down by interposing the proper resistance in order to bring the current to the normal rate. This can be done either by a rheostat or by a bank of incandescent lamps connected in parallel, in series with the main circuit. Every sixteen C. P. lamp will allow about one-half ampere of current to flow and ten such lamps connected in parallel will furnish a charging current of five amperes. Of course there is no harm in charging at a lower rate than the normal, if the great number of lamps should be any objection to the operator, or to use fewer lamps of higher candle power.

With the arc light circuit, where the arc lights are connected in series with the main line and only a fixed amount of current is flowing no special resistance is needed, as the storage battery is simply connected in series with the line the same as all the arc lamps.

In case the current on such a line should be in excess of the normal charging rate, which would be damaging to the plates, the battery should be connected in multiple; that is, all its positive plates to one end of the line and all its negative plates to the other end. Thus the large current is divided through the battery and each cell instead of receiving the full amount of current will only receive its pro rata.

Very few dentists will ever use small dynamos to charge their storage cells with, as the first outlay for such an equipment is quite expensive and requires a good deal of attention.

To charge accumulators from primary cells, where no commercial current is available, is perhaps one of the simplest and also cheapest ways of doing. Only primary cells, which will be able to deliver a steady continuous current for any length of time can be used for this purpose, and among them the so-called

gravity cell in its different forms is the best. This cell will deliver a very steady current of a low intensity as long as the chemical action is kept going, and therefore it can be left connected permanently to the storage battery. All the attention needed is the replacing of the absorbed copper sulphate about once a month and of the zincs about every six or eight months according to the type of cell used. When white salts begin to creep out on top of the cells this is a sign that the solution is oversaturated with zinc sulphate and part of it should be taken out from the top of the cell, without disturbing the solution too much, and be replaced by clean water. If these points are carefully observed the primary battery will furnish a very satisfactory charging medium, which renders the dentist absolutely independent from the exactions of electric companies, especially in small towns.

The gravity cells deliver a current of about three-eighths ampere, and when connected permanently to the storage battery will charge about nine ampere hours in twenty-four hours' time. If this should not be sufficient for the work to be done, another series of primary cells of the required voltage can be added, which will double the amount of current charged.

The use of thermo-generators in connection with the storage battery is comparatively new in this country, although they have been used quite successfully in Europe for this purpose for the last ten or twelve years. As the name indicates, in such apparatus the current is generated by heat, the instrument consisting of a large number of thermo-electrical pairs (strips of two metals of different coefficient of expansion and electric affinity), connected together in series in such a way as to expose the inside or half of all the joints to heat, while the other half or outside is kept cool. Thus by the difference of temperature between the two joints of each pair a small electromotive force is generated, which will increase with the number of pairs or elements connected together. Owing to the very small E. M. F. generated at each joint and the high internal resistance, quite a large number of pairs will be required to produce pressure sufficiently strong to charge three or four storage cells. Naturally the cost of such thermo-generators will be high and their use limited to small batteries. On the other hand, the electric mallet, mouth lamp and even a small fan motor may be operated successfully direct from the apparatus, while

the amount of current flowing will not be strong enough to drive a power motor direct, and the accumulation of current in the storage battery needed.

In charging a battery the following point should be watched: Special care must be taken that the polarity of the charging current is right. The positive pole of the battery must always be connected with the positive pole of the charging source. The voltage required to charge should be at least fifty per cent. higher than the combined voltage of all the cells in the battery, assuming for each cell an E. M. F. of two volts.

The rate of charge should be preferably kept at normal or under, as continuous charging at a higher rate than the normal will damage the plates.

In dental practice discharging until complete exhaustion is not advisable. Repeated recharging only for a few hours every few days will keep the battery in much better condition and preserve the plates much longer than a complete discharge and then a recharge. Besides, the operator being liable to forget that this battery is exhausted will let it stand so for a length of time and the plates will soon become seriously injured. A long series of tests has shown that the continuous discharging of storage cells below one and nine-tenths volts is liable to produce sulphating of the plates; and the nature of the chemical action being changed, it also leads to the distortion of the positive plate, which is known as "buckling."

As the plates are located very close together in the cells to reduce the internal resistance, buckling is liable to cause the plates to touch, thus short-circuiting the cell.

The plates should always be completely immersed in the electrolyte. Evaporation will cause the electrolyte to fall below the level of the plates; this is detrimental and must be compensated for by the addition of water, as it is only the water which evaporates, the acid remaining in the solution. When adding water to a cell to make up for this evaporation it should be put into the cell through a hose or funnel reaching to the bottom, otherwise the water being lighter than the acid will remain in a layer on the top.

With a good modern storage battery very few troubles are liable to occur, provided proper attention is given to keep the regulation of the charge and discharge within proper limits and if the cells are properly supplied with electrolyte. The only

thing likely to happen and cause trouble is the formation of short circuit between the plates, causing the cell to discharge through itself. The short circuit may occur either in the cells through the scaling or peeling of the active material, the pieces which become detached lodging between the positive and negative plates, or in the apparatus operated from the battery.

As soon as it is noticed that the battery will not hold its charge it should be immediately examined for short circuits. The best way to do this is to probe between the plates with a thin piece of hard rubber, thus removing any material which may have formed a connection between the plates. If this will not stop the trouble and the electrolyte is covering the plates entirely, in most of the cases the short circuit will be found in the apparatus. One or two charges and discharges will soon bring the cells back to their original condition.

To sum up what has been said before, all there is needed to keep a storage battery in good condition, is a proper installation, a judicious charging with due consideration for the amount of the current taken out and a careful maintenance of the cells.

The storage battery of to-day is a practical and mechanical piece of apparatus. Engineers have come to the assistance of the chemist, the result being a well designed and constructed apparatus, free from the weak points which were inherent in all early types of cells and which necessitated the constant attention of a skilled doctor or nurse.

Dental Review.

THE ANÆSTHETIC PROPERTIES OF NIRVANIN.

By Charles A. Elsberg, M.D.

In analyzing some of the products obtained in the synthetic formation of orthoform, Einhorn and Heinz discovered and described a new substance, which they called nirvanin, and for which they claimed anæsthetic properties. This substance is a white salt that has no odor, a strong bitter taste, and is very soluble in water. Luxenberger studied its effects on animals and on the human subject, and concluded that nirvanin was a very good local anæsthetic. According to Luxenberger, nirvanin is ten times less poisonous than cocain; it acts as an antiseptic in a one per cent. solution; it is very stable.

In order to determine the maximum amount of this substance that can be used with safety in the human subject, I injected different quantities of a ten per cent. solution of nirvanin, dissolved in four per cent. saline solution, under the skin of six rabbits.

The animals with slight symptoms of poisoning showed signs of weakness in their limbs ten to twenty minutes after the injection. The animal lay on its belly, its whole body trembling. These symptoms disappeared after one to two hours.

In the rabbits in which symptoms of severe poisoning appeared, these came on ten to twenty minutes after the injection. The animal seemed to be very weak; it lay on its abdomen, unable to support itself on its limbs, which continually slipped out from under its body. The hind legs were especially affected, and sometimes they seemed to be partially paralyzed. The animals trembled violently whenever they were disturbed, and this was often followed by general convulsions. After these attacks the animal sometimes rolled on its side as if too weak to support itself. Respiration and pulse were very rapid. After three to twelve hours the animals seemed to have fully recovered. None of them died.

As a result of these experiments, it would appear that 0.22 gram of nirvanin is the toxic dose for every kilogram of rabbit. As 0.02 gram of cocain is the poisonous dose for a corresponding weight of animal, it follows that nirvanin is ten times less poisonous than cocain. Luxenberger arrived at the same result. Ten times as much of nirvanin as of cocain can therefore be used in the human subject. The poisonous dose of nirvanin is therefore 0.5 gram, as compared with 0.05 gram of cocain.

Regarding the antiseptic properties of nirvanin, I must quote briefly from the work of Luxenberger. I have kept solutions of various strengths (one, two, five, ten per cent.) for several months, and although the bottles containing them were frequently opened and portions of the contents removed, the solutions remained clear. Luxenberger added two, three and four per cent. of nirvanin to culture tubes of peptone-gelatin which had been infected with bacillus pyocyaneus and with staphylococcus albus and citreus. In one-half per cent. solutions bacillus pyocyaneus grew luxuriantly, but the staphylococci grew poorly.

A half per cent. solution still contained live bacilli at the end of thirty-six hours. A one per cent. solution became sterile

in twelve hours. A two per cent. solution became sterile in six hours. A three per cent. solution became sterile in three hours. A four per cent. solution became sterile in three hours.

Luxenberger concluded that one can keep a one per cent. or two per cent. solution of nirvanin in stock, and it will remain sterile.

The solution deteriorates very slowly when boiled. Thus I boiled a one per cent. solution for five minutes—anæsthesia lasted twenty-one minutes. It was boiled twice for five minutes, at intervals of twenty-four hours—anæsthesia lasted twenty-two minutes. It was boiled three times for five minutes, at intervals of twenty-four hours—anæsthesia lasted twenty-one minutes. It was boiled four times for five minutes, at intervals of twenty-four hours—anæsthesia lasted twenty-one minutes. It was boiled five times for five minutes, at intervals of twenty-four hours—anæsthesia lasted twenty minutes. It was boiled six times for five minutes, at intervals of twenty-four hours—anæsthesia lasted seventeen minutes. It is desirable to keep a one per cent. and a ten per cent. solution in stock, and to dilute one of these with 0.4 per cent. saline solution before using. In general, the 1 to 500 solution should be used. Of this, five times as much can be used as of Schleich's solution No. 2. The anæsthesia is immediate, comes on painlessly, and lasts for from fifteen to forty minutes. In incising abscesses, carbuncles and other such painful affections, the one per cent. solution should be used, of which as much can be used as of Schleich's No. 2.

In an experience extending over eight months, I have never seen a case of poisoning from this substance.

The technique of infiltration with nirvanin differs in no manner from that with Schleich's solution. The anæsthesia is limited strictly to the infiltrated area. Outside of this area there is a narrow zone of hyperalgesia and outside this normal sensation. This necessitates a scrupulous adherence to the rule which holds good for all operations in infiltrated tissues—*i. e.*, never to cut beyond the infiltrated area. It is generally possible, and always advisable, to infiltrate the entire field of operation from the surface to the depth before making the first incision. It is much more difficult to infiltrate tissues where there is already an open wound, as considerable of the fluid will then escape. The best procedure is that of Mikulicz. He first makes a series of wheals in the skin, pushing the needle along as each wheal is formed;

then the needle is drawn out almost to its end, then pushed somewhat deeper, and then pushed forward as before. This is repeated as often as necessary.

In the painful affections, such as abscesses, furuncles, and the like, one must begin to infiltrate in the healthy tissues, and gradually approach the inflamed areas. Even with the utmost care, the anæsthetization of these areas is often painful on account of the increase of tension caused by the injection. Schleich recommended that the tension should first be relieved by emptying the abscess through a small incision. But even a small incision may interfere with the success of the infiltration, by allowing some of the infiltrating solution to escape. In operating on abscesses, I have recently proceeded in the following manner: A small wheal is made in the healthy tissue in the neighborhood of the abscess, with a syringe containing a small quantity of nirvanin solution; the needle is then pushed forward, and another wheal is made in the depth; through the area thus infiltrated the needle is pushed into the abscess cavity and some of the pus aspirated; the needle is then withdrawn and another needle inserted, and with another syringe the infiltration is then proceeded with. The first needle puncture is so small that none of the infiltrating fluid will escape through it. In this manner I have opened many abscesses painlessly with one per cent. nirvanin solution.

A large field for infiltration anæsthesia lies in the possibility of removing new growths by its means. For this purpose 1 to 1,000 or 1 to 500 solution of nirvanin was generally used. Fibromata, lipomata, enlarged glands, ganglia, etc., were successfully extirpated; foreign bodies were found and removed with ease. By means of the 1 to 500 solution injected beneath the periosteum, sequestra were painlessly removed from the bones of the hand, the foot and the fore-arm. Amputation and exarticulation of the fingers were done without trouble. Teeth were drawn without pain by means of injections of two per cent. solution. I generally hesitate before making use of infiltration anæsthesia in the mouth. Cases of severe infections after infiltration of the tongue or of the mucous membrane of the mouth have been reported, where bacteria must have been forced into the deeper tissues by the injection. Mikulicz had a case of severe glossitis after the removal of a small tumor of the tongue under Schleich's solution, and others have reported similar cases.

Nirvanin has no irritating effect upon the tissues, and never interfered, in my cases, with healing by primary union.

Wherever there are contraindications to the use of the infiltration method, such as extensive inflammatory affections, malignant new growths of large size with ill-defined limits, etc., there obviously nirvanin will also be contraindicated.

In conclusion, I may be permitted to sum up my results in the following:

1. Nirvanin has distinct and valuable anæsthetic properties when injected into the tissues according to the infiltration method.

2. Nirvanin is ten times less poisonous than cocain, and more than three times less poisonous than eucain.

3. It has distinct antiseptic properties; a solution of one per cent. or more can be kept as a stock solution, and will remain sterile.

4. It is a stable compound, and can be boiled a number of times without diminishing to any degree its anæsthetic properties.

New York Med. Jour.

THE THERAPEUTIC USE OF WATER.

By George P. Sprague, M.D.

To use water scientifically, its physiological action in health and disease must be studied as have those of all others of our standard remedies. This has been largely done by such men as Winternitz, Brand, Erb, Vogl, Liebermeister, and others in Germany, and Baruch in the United States, and many men throughout the world are now testing, weighing, counting and measuring the results of the use of water in disease. In doing this, too, they are bringing forth new physiologic data which compels us to alter some of our most important preconceived ideas on such matters as the causes of heart-failure, the importance of reflex action, and the manner of heat-regulation. We sometimes lose sight of the fact that the skin (through whose 20 square feet of surface we secure the benefits of hydrotherapy) is really an enormous gland richly endowed with nerves, secreting and excreting organs, and a network of bloodvessels which can contain at one time about 35 per cent. of the entire blood-supply of the body. The nerves which supply the skin are composed of medu-

lated and nonmedulated fibres, the functions of sensation, secretion, and heat-regulation requiring a large supply of nerves from both the sympathetic and cerebrospinal systems. The function of sensation requires a most complex system of nerves of general sense, nerves of tactile sense and the specialized nerves of the latter group for the appreciation of heat and cold. In the words of Baruch, "the cutaneous nerve-endings stand guard, as it were, over most of the functions of the human body; they are constantly exposed to irritation by heat and cold, which they convey to the vasomotor, respiratory and cardiac centers, and to the muscles, in order to arouse them, by reflex action, such a degree of enervation as may be required to ward off any damaging influence that may approach from without." When these nerve-endings convey their message to the cardiac center the heart is strengthened and slowed. When they affect the center for respiration, breathing is slowed and deepened. In securing vasomotor action the skin may be emptied of its blood, or its vessel so relaxed, that more than one-third of the total volume of blood may be within it according to the wish of the physician. The anatomies and physiologies of even ten years ago contain a strangely vague and brief account of the sympathetic nerves, and of reflex action; but we have progressed since then so that we now know that **the proper application of water to the skin restores the heart when digitalis and strychnia will not**; expands the lungs and increases the chest-measurements when exercise and tonics fail; brings color to the cheeks of the chlorotic girl more rapidly than does ferrous carbonate, and that it will often check the advance of phthisis after drugs and climate have been used in vain. These are broad claims, but they have been amply substantiated, and we know why they are facts. We have been taught that the terminal arteries have no inherent power to change their own calibers, but Professor Woods Hutchinson, in the *Boston Medical and Surgical Journal*, defends the claim that the bloodvessels have a rhythmic contraction and expansion of their own, in addition to the contraction caused by action of the vasomotor nerves and the relaxation caused by drugs, heat, etc. This theory certainly seems more reasonable than that all blood-propulsion depends on the heart alone; it also accounts, as no other theory does, for the circulatory phenomena noted in the hydriatric procedures. He gives to this the expressive name of the "skin-heart." Romberg and

Paessler, German investigators, found that the failing heart so justly dreaded in febrile conditions, is not really changed in its muscular quality, but that the lack of tone in the peripheral vessels due to vasomotor paralysis is the real cause of its weakness. Restore this tone, the heart is better filled and regains its force.

Hare, in the *Therapeutic Gazette*, illustrates this by comparing the heart with vasomotor relaxation to a locomotive on a slippery track; the rapidity of its action racks the heart as the revolving wheels do the engine; giving digitalis makes it worse, as does feeding the fire of the engine increase the strain on it. But give the heart the normal vasomotor resistance (put sand on the track), and a slower, stronger action is the result. Bearing in mind that all increase of function is dependent on increased blood-supply, and that increased circulation of blood results from a slow heart beating strongly, in connection with a heightened vascular tension, and we see theoretically, as we find in practice, that the lungs absorb more oxygen, that the kidneys secrete more urine with an increased percentage of toxic solids, that intestinal peristalsis is increased, and that the skin itself becomes more active as the result of hydrotherapy. This briefly covers the more important physiologic factors in the use of water, though many scarcely less important points must of necessity in this brief paper be left untouched.—*Philadelphia Medical Journal*.

SALIVARY CALCULUS FROM THE SUBMANILLARY GLAND.

By S. H. Dessau, M.D.

There has recently occurred in my practice a case of unusual interest to me from the fact that it was the first one of the kind that has ever come under my observation.

A young woman, twenty years of age, had complained for three days of pain upon movement of the tongue and jaws, and of a swelling underneath the tongue on the left side. On examination I found a lymph node, enlarged, tender, and movable, in the left submaxillary region. A portion of the sublingual gland of the same side was also swollen, and there was a decayed molar tooth in the lower jaw on that side. No digital examination of the mouth was made. The patient had had a mild attack

of influenza during the previous week and it was thought that some infective process had been lighted up in the root of the decayed tooth.

The following day the inflammatory process had progressed, causing increased enlargement of the sublingual gland, the surface of which was excoriated. There was also increased swelling with tenderness of the submaxillary lymph node and induration of the floor of the mouth. There was a free flow of saliva. The speech was thick, and there was inability to open the mouth to any extent. Temperature was 101 degrees F. The condition suggested some slight suspicion of Ludwig's angina.

Suppuration, with spontaneous rupture of the ranula, occurred the same night and a calculus was passed from Wharton's duct. The calculus was eleven-sixteenths of an inch long and two-sixteenths of an inch thick at the central portion, tapering to a rounded point at either end. A fine probe passed five days later showed the duct free from further calculi. It is needless to say the patient promptly recovered from her unpleasant symptoms.—*Medical News*.

THE BOER AND HIS DENTIST.

A correspondent who has lived many years in South Africa, sends us the following:—

The Boer is a constant sufferer from two ills—these are indigestion and toothache, and the one is the outcome of the other. He endures the indigestion with comparative cheerfulness; his father and mother had it before him, and why should he not have it also? But when the toothache arrives and gets in its fine work, his philosophy vanishes, and he incontinently caves in; and this is where the "traveling dentist" comes in. It is a peculiarity of the Transvaal that most professions and trades have their exponents who travel from one end of the country to the other offering their services to all who may require them, and in this category the dentist takes a prominent part. The men who follow this calling embrace in their ranks representatives of all classes of industry; many of them have at times served in Her Majesty's forces—none of them have any right to ally themselves with the profession; but the Boer asks no questions, and so this little discrepancy does not matter. These men travel round the country districts, as a rule, mounted

on some ill-fed, weedy horse. Their stock-in-trade consists of some pairs of forceps, a stock of remedies, and an abnormal amount of what our American cousins denominate "push." They travel from farm to farm until their services are required. When a Boer gets the toothache everyone in the neighborhood knows of it. The news is generally carried round by the Kaffir or Hottentot servants who have sought safety in flight, for on such occasions the Boer invariably relieves his feelings by knocking smoke out of everything black that comes within his reach. The dentist will be told that Oom Jantze, who lives behind the little red kopje, has got a toothache and his Kaffirs have run away. On the receipt of this news the professor of the healing art will inquire the way, and set off post haste to relieve the afflicted one. On his arrival at the farm he is welcomed by the rest of the family, and terms are arranged. This will take some time because there are no standing fees, and each side would endeavor to get the best of the bargain. The victim himself will often join in the discussion and try to lower the price by saying, "It's a small one, and the pain is getting better. Perhaps I need not have it taken out." This talk, however, is always recognized as mere padding by the dentist and little notice is taken of it. After the bargain is struck the operator extracts the tooth (some of these men are fairly skillful), and the money will be paid over. The dentist's work is not over, however, when he has pulled out the offending molar and handed it to the sufferer. He now unpacks his wallet and produces his stock of remedies, and dilates on the fearfully infectious nature of toothache. "You will all have it," he will cheerfully remark, "everyone of you. You (pointing to the vrow) will be lying in that chair shrieking with pain before this day week. You (turning to the daughter) will have your face swollen to the size of a rotten pumpkin in three days' time unless you take something to drive it away;" and then he will produce the one infallible remedy, and as a rule prevails on every adult member of the family to lay in a supply. If the day is still young the dentist will continue his journey; if it is verging towards evening he remains at the farm for the night, a hospitality which is always freely accorded. One advantage of this migratory life is that a man can live free of cost, because the Boer will not accept pay for entertaining a traveler. He will, however, charge for any supplies the horse receives, and this accounts

for the usual well-fed condition of the man, and the air of starvation which invariably hangs over his steed. Some of these men have regular beats which they visit from time to time and where they are well known. They are a jovial, happy-go-lucky crew. They make money easily at times and spend it equally freely. When "things are bad" they philosophically incline to the old saying that the sun cannot shine every day, and hope for better luck on the morrow. There is not much doing in this particular line to-day, but they will turn up smiling again when the war is over.—*The Medical Record*.

DOES GOLD GROW?

Strange stories are being told of the manner in which Colorado and California mines are renewing their youth, and science has ceased to laugh and begun to investigate. The rafters of old shafts have been discovered coated with the yellow metal, and there are those who find in this a proof that gold is not an element, and that some day soon gold, silver and platinum will be found fundamentally identical, and their artificial manufacture permanently assured.

Henry G. Hawkes, the United States mineral commissioner for the Paris Exposition of 1878, says: "It is possible, although I will not say it is probable, that gold may be at any time determined to be a compound of two or more elements, and that the process of reuniting such elements may be discovered in turn, realizing the dreams of the ancient alchemists. On the other hand, there can be no doubt but that gold is in the process of manufacture, or, to speak more correctly, in nature's laboratory it is all the while being put in place. In certain abandoned mines in Australia, in which operations have been resumed after a considerable term of years, not only have rock deposits been found to have become enriched during the period of inaction, but old beams and timbers were impregnated with gold."

A. S. Cooper, California State Mineralogist, goes even farther: "We know that gold accumulates from solutions and is thereby left in rock-veins. In other words, these solutions rise in fissures in the rocks, and the other elements disappear or are decomposed, leaving the gold behind, sometimes in actual crystals.

"Certainly I admit that gold may prove to be a combination of elements rather than the simple element it has hitherto been supposed to be. For that matter I am ready to admit that gold and all other elements may yet prove to be one and the same—different forms of hydrogen, perhaps, which possesses the lightest atomic weight of all known substances, and may therefore be logically supposed to be capable of being converted into the greatest variety of forms and substances through strictly mechanical metamorphoses, along lines in which men of science are now studying and experimenting."

Louis Falkenau, one of the best known assayers in the country, says that he admits not only the possibility that gold may grow, but also the probability that it is not a simple element, while Henry S. Darden, Secretary of the California State Mining Bureau, adds: "Gold not only grows, but it is being deposited in California to-day by the hot solfatarras at Sulphur Creek, in Colusa County, where any one who pleases may see it. It occurs with cinnabar, free sulphur and bitumen, a combination which probably has not a parallel elsewhere. I have seen cinnabar brought down from there with crystals of gold imbedded in it. The gold is deposited on the outside of silicious rocks, in the form of crystals, and is plainly formed by the evaporation of aqueous deposits. We have specimens in the State Museum."

PHYSIQUE OF THE BOERS.

There can be no doubt that the Boers have displayed much greater prowess and power as men of war than was ever anticipated. With but few exceptions, the Boers live in the open country. Indeed, it has been said that the ambition of the Boer is to be surrounded by so vast a tract of land that he cannot see the dwelling of his nearest neighbor. Then his occupations are outdoor occupations. He must ride enormous distances to go to church, to do his shopping, to fetch a medical man, or to pay a visit. For his food supply he depends to some extent on hunting, and here we have again a health-giving occupation, to say nothing of the incidental fact that this familiarizes him with the use of a gun and enables him to become an excellent marksman. But, over and above all these considerations, there is the all-important fact that he is exempt from the health-wearing

trials alike of wealth and of poverty. Neither surfeited by luxurious living nor starved for want of the necessities of existence, the Boer leads a life of true temperance free from over-indulgence and from the excess of abstinence.

But what in the long run often proves more fatal than, for instance, too much or too little food, is the terrible strain on the nervous system due to the want of leisure, the want of freedom from anxiety caused by our overwrought civilization and the acuteness of the struggle for existence. The Boer mind is not torn and harassed by the ambitious hope of wealth or the constant dread of bankruptcy, of poverty, debt, and starvation. His is an easy-going life. He feels quite safe as to the morrow's existence. His land is not over-populated, but under-populated. There is plenty of room for him and his family, however numerous. He has no fear of the bailiff or of the debtors' court. He does not tremble at the thought that he may be discharged from his employment or that the formation of some big trust or syndicate may ruin his business. He has but little experience of the luxuries and the extravagant modes of living prevalent in our Western civilization; he knows nothing either of our sordid poverty, of our overcrowding, and of all the insalubrious and degrading conditions bred of misery that accompany and put to shame our wealth. It would not be possible to find a "submerged tenth" among the Boers. Therefore the Boers are free from those nerve disorders that so largely contribute to destroy the health of the populations in the great commercial centres.

In so far as they are of Dutch descent, the Boers should be small. The French blood which is mingled with that of the Dutch would not tend very considerably to increase the height of the Boer. The French, though taller than the Dutch, are not so tall as the English. Yet the Boers of to-day are taller, stronger, and possess a more powerful physique than the English. It is quite a common occurrence to meet a Boer six feet six inches in height. Indeed, it has been said that the average height of the Boer is six feet two inches. This is undoubtedly a gross exaggeration, but that such an exaggeration is possible tends to show how striking is the impression made by the tall stature of the Boers. All travellers bear witness to their magnificent physique, especially those who have been among the real Boers, that is to say, those who live in the rural districts well

away from the railway lines. The Boer who has taken to town life and acquired town vices may degenerate like other people, but this is not of frequent occurrence. Even those who do live in towns often preserve their primitive and simple methods of existence. President Kruger himself is a good example. He still keeps up the pastoral habit of going to bed at eight o'clock in the evening, and he is up by five o'clock in the morning.

But apart from the flesh and bone, the big, strong frames, and the hard muscles developed by the healthy, constant outdoor exercise, the Boers have practical freedom from the diseases due to alcoholism and vice. They are not total abstainers, but they are remarkably sober, and drunkenness is rare among them. Equally important from the health point of view is the fact that the Boer is essentially a moral man. Indeed, even were it otherwise, his isolated life in far-off farms offers no opportunities for contracting the diseases connected with vice. On the other hand, how often are British soldiers punished for drunkenness and invalided through venereal disease. Not only is almost every Boer physically fit to take the field and fight for his country, but he is a stronger, healthier, and bigger man than even those who have been selected by medical examination as fit to serve in the British army. If the entire male population of our country, without any sort of selection, from the age of fourteen to sixty years, were made to stand forth they would present a sorry spectacle as compared with a similar crowd of Boers. Let any one, for instance, take his stand in a crowded street in the centre of Glasgow and note how many men will pass him whose backs are straight, who have expanded chests and healthy complexions. Again, in Lancashire, let the observer note the dwarfed figures and pallid faces of the thousands of factory women as they leave the mills. And London, with its west-end slums festering under the shadow of neighboring mansions, and its boundless stretch of east-end misery, what sort of army would this huge metropolis produce if every male inhabitant were called under arms? In dealing with the sanitary aspect of the question it would be most misleading to compare the British army with the Boers. The British army is an infinite minority of the British nation, and is composed of men specially selected for their physique. With the Boers it is the entire nation that has risen to fight against us; and the fact that primarily interests sanitarians is that there has

been no selection among the Boers, for all, practically speaking, are physically fit. Surely there is something in this marvellous fact to give us pause and to make us think seriously as to whether we are doing all we can to ensure that our people shall possess and preserve those physical qualities without which our empire cannot be maintained.

The moral is very simple. The efforts of legislation and of philanthropy should be directed first to endeavor to get as large a section of the population as possible back on to the land. Secondly, we should strive to make town life as similar to country life as is possible. Therefore, our streets should be as broad and our houses surrounded with as much open space as circumstances will admit. All accumulations of filth which corrupt the atmosphere of towns should be removed with the utmost celerity, and means of communication should be so multiplied and reduced in cost as to enable townfolk to enjoy the maximum of exercise in the open country. If we must fight for our empire such measures are indispensable.—*The Lancet*.

DO ANIMALS FEEL PAIN LESS THAN MEN?

What we call an "ear for music" is almost an added sense in some people as compared with others. Even in animals of relatively high intelligence, such as dogs and monkeys, there seems to be reason to think that their perception of pain is much less acute than in humans. After serious operations under chloroform they are often frisking about a few minutes after recovering consciousness, and even jumping from the floor on to the operating-table in a way that forbids the notion that they are in suffering. In all animals the skin is possibly less sensitive than the human skin. It is covered with insensitive hair, and though no doubt more sensitive than any other part of the body, it is presumably on quite a different plane of sensitiveness from the human skin. In human beings the sensitiveness of the internal organs is very small compared to that of the skin. Examples of this are familiar to every one. While in health, no one knows anything of his "inside;" he has no sensations from it. Even disease of a very serious kind can, and often does, go on for years in the internal organs without causing any sensation.

The nerves of the internal organs are much more concerned

with regulating functions and controlling the size of the blood-vessels than with the conveyance of sensory impressions to the brain. Life would, in fact, be unbearable if the functions of animal life in a normal state caused sensation; and they would cause it if the organs were richly supplied with sensory nerves. Every surgeon knows, for example, that the human intestine is, when its muscular coat is at rest, almost as insensitive as the hair or nails. In the operation of opening the intestine, often required in the presence of malignant disease, the cut in the skin and the business of fixing the gut to the skin would be very painful, and deep anæsthesia is required. Two days later, when the gut in its new position has to be opened, the patient is told to shut his eyes, and he feels nothing; he does not even wince while a wound nearly two inches long is made in the intestinal wall with either knife or hot iron. This has been proved by hundreds of cases, and certainly it is not to be explained as due to stoicism on the part of the patient. Other important operations have been done without anæsthesia, except for the skin cut, and without giving rise to a suffering at all of a severe kind. It is most improbable that even the highest of the lower animals would feel pain where man feels none. On the contrary, from their smaller brain development they probably are less sensitive than man.

Edinburgh Review.

ORAL BACTERIA.

Mr. Kenneth W. Goadby, L.D.S., has found and isolated from the mouth an organism belonging to a species not heretofore described as inhabiting the buccal cavity; that is, a *cladothrix*, which, moreover, is fairly constant in healthy as well as unhealthy conditions of the mouth; it has well marked characters, and is extremely pleomorphic. It may be cultivated upon the ordinary laboratory media. He suggests the name *cladothrix buccalis*. He has worked out still further a considerable number of microorganisms which are found fairly constantly in the mouth, and which have a distinct relation to dental caries. Two of these organisms have been found pathogenic for guinea-pigs. (*Spirillum sputigenum*, *B. maximus buccalis*.) He has also isolated from dental caries, after observing the usual precautions, two organisms that are of constant occurrence: (a) *Streptococcus brevis* of Lingelsheim; (b) *B. necrodentalis* (Goadby), an organism with

cultural and morphological characters, which are different from other known organisms. He has also isolated from the mouth certain organisms which are liquefiers of blood serum, and which are able to liquefy entirely decalcified tooth cartilage. He has also found that in the process of dental decay the deep organisms are for the most part anaërobic, but facultative aërobic and also for the most part acid producers; the surface organisms are often liquefiers (aërobic), rarely acid producers, from which it follows that the process of dental caries is originated by acid-forming organisms, which are capable of anaërobic existence, and that the solution of the lime salt allows the liquefying organisms to complete the destruction of the tooth.

British Medical Journal.

THE EFFECT OF COLORED LIGHT ON THE NERVOUS SYSTEM.

It has long been claimed that colored light has a special effect on men and the lower animals. It has been asserted by some that the lower animals grow more rapidly in violet than in white light. On the other hand, Flammarion has found that silkworms grow least rapidly in the violet rays. Experiments on the nervous system are in better accord. They show, according to Henri de Parville, writing in *La Nature*, Paris, that the red end of the spectrum is exciting to the nerves, while violet, blue and green are calming. It is well known that turkeys and bulls are excited by red; on the other hand, blue glasses are often used to quiet horses. In the photographic establishment of the Messrs. Lumiere, in Lyons, France, sensitive plates are prepared in a large room by green light. Formerly, when red light was used, the workmen always sang or gesticulated at their work. Now they are calm, never speak, and assert that they are much less tired in the evening than they were previously. Every sufferer from nerves knows that a gloomy day affects him unfavorably, while the first ray of sunshine makes him gay again. It has been suggested that the green of vegetation, the blue of the sky, and the blue-green of the ocean may thus have a powerful influence in calming the spirits. Parville, however, cautions his readers against too sweeping conclusions. All that we can say is that colors certainly appear to affect the organism, and that the subject will bear further investigation.

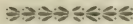
Public Opinion.

THE NUMBER MANIA.

"The 'number mania,' as it is called, is very easy to acquire. Roughly stated, it is an impulse to perform certain trivial acts a certain number of times, coupled with an indefinable feeling that some calamity will occur unless the impulse is obeyed. For instance, a man may have a morbid prompting to touch the knob of his bedroom door four times before he retires or to touch the end of his penholder twice every time he lays it down.

"Lots of people have the number mania in the most grotesque forms all their lives and are in every other respect perfectly sane. Emile Zola is probably the best known example, and his case is frequently referred to in medical prints. There are a number of articles about his house that he must touch just so many times every day; if he doesn't he declares he is oppressed with an intolerable foreboding, a vague, haunting sense of impending calamity. Zola is well aware that all this is merely a morbid condition of the nerves and laughs about it to his friends, but he goes through the ceremony of touching, nevertheless, as the shortest way to get rid of the obsession.

"I know a man who can't sleep unless he taps half-dozen different toilet articles on his dresser with the tip of his right forefinger. No other finger will do, and this individual, by the way, is the hard-headed, intensely practical manager of one of the biggest business concerns in town. Another gentleman of my acquaintance feels himself obliged to press his thumbs together three times whenever he goes out of doors. Most people who have the mania suppose they are the only folks in the world afflicted with that particular type of crankiness, and keep it a profound secret. When they find out that 'there are others,' as the phrase goes, they are invariably surprised and delighted. Misery loves company."—*New Orleans Times-Democrat*.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

THE DIDACTIC LECTURE.

One of the most significant features of modern social life is the enforced submission of all the varied phases of human effort to the one supreme test of practicality as measured by results. Especially is this true of educational systems and methods; culture for culture's sake, once the aspiration of the many, is now the aim of but the few. Scholarship for the vast mass of students of to-day is but the acquisition of the tools of a trade—of knowledge which is purposeful, skill which is masterful. Those great seats of classical training whose studies Bacon said were for delight and ornament as well as for use have become workshops in which study should be a delight and may be an ornament, but must be useful.

Such changes in the needs and aims of the scholar have enforced corresponding changes in the methods of the teacher. Pedagogy has become a science whose purpose is the imparting of knowledge by whatever methods are most direct and by whatever agencies are most effective.

One obvious result is the greatly diminished importance attached to the didactic lecture in all scientific courses of instruction. Professor Butler, Dean of the School of Philosophy at Columbia University, says on this subject:

The lecture system has been imitated in this country from the German universities, where it has, in many instances, been for years an object not only of criticism but of reproach. The use of the lecture as a means of conveying information already

printed or easily accessible in printed form can hardly be defended. It lacks all of the essential elements of good teaching, and is, in addition, a serious waste of time. The real function of the university lecture is to interpret facts already accessible to the student through text book, book of reference, or printed syllabus. In addition to these aids it is becoming more and more advisable to connect with the lecture the systematic quiz, by trained assistants, of students either singly or in groups. In this way the lecture becomes an instrument of high educational value. Without these aids, it is, at its best, a very imperfect instrument and one which yields every year, judged from the student's point of view, more and more unsatisfactory results.

The old recitation system, for many years familiar to students and teachers in American colleges, had merits peculiar to itself which should not be overlooked because of its obvious deficiencies. It is not unlikely that the best university teaching of the future will, through dependence upon text-books, a syllabus, and the systematic quiz by assistants, work out a method of its own which will combine the advantages of the old class recitation with those of an interpretative lecture by an inspiring master of his subject.

This is a forcible and at the same time a conservative statement regarding the question at issue. Doctor Huntington, Professor of Anatomy at Columbia, declares that in that school "object teaching has replaced theory," and that demonstrations, and those to small numbers of students, so that personal attention can be given to each one, are the key notes of the modern method of teaching anatomy. Professor Porter, Associate Professor of Physiology at Harvard University, states that there "very little room is left for the didactic lecture, practically none for the lecture as a lecture, but only as a preparation for experiments or sometimes as a historical resumé of the subject."

Similar quotations from other sources might be indefinitely multiplied, but those given indicate with sufficient clearness the present trend of thought in educational circles.

As regards dental pedagogy the fact is pretty generally recognized that much time has been wasted in making lectures upon subjects which can only be really taught in detail at the work bench or operating chair; for while something can be accomplished by verbal description, aided by drawings, models

and diagrams, in giving a general idea of the technique of manipulative procedures, such methods can by no means secure actual technical skill in creative work.

Even in the so-called theoretical branches the more close, personal and individual instruction can be made the better for the student as well as for the teacher. There is, of course, much necessary information which can be communicated quite as well to a reasonably large number of students as to an individual or a small group, in which case it would certainly be a bad economy of the teacher's time and energy not to avail himself of the less laborious and less time-consuming method. A lecture does not necessarily cease to be a lecture because it is addressed to one, any more than any oral instruction becomes a lecture because it is addressed to many.

In general terms the field for lecture room instruction is in the elucidation of general principles and the demonstration or interpretation of the facts upon which they are based. Such instruction a teacher is justified in imparting to as large a class as he finds he can hold. This power of holding attention is one which varies with the nature of the subject, the character of the class and the personal force and magnetism of the teacher. To whatever extent attention is lacking in any hour's instruction the time is lost and the lesson a failure.

A good lecture by a born teacher is not only informing but inspiring, and in the midst of an arduous course comes as a welcome relaxation from text book and laboratory drudgery; but just in proportion as it supplants rather than supplements these it becomes an element of weakness rather than of strength in the course of instruction.

As all teachers know, students of undisciplined minds often appear to regard lectures as a sort of pill or potion which when taken at intervals as directed will make knowledge "soak in" by some mysterious process of mental osmosis—certainly without the necessity for active mental effort on their part. If they are allowed to cherish this artless optimism until the end of the

course the result can only be calamitous to the student and discreditable to the teacher.

Lecture room instruction can never be fully effective unless the impression made upon the mind of the student is strengthened and accentuated by subsequent study; and the teacher can by no possibility have an adequate knowledge of the result of his work except by quiz and examination, which in every stage of the course should be inseparably associated with college work and constitute an important part of every day's college routine.

THE SUPERVISING BOARD OF ARMY DENTISTS.

The passage of the Otey bill providing for Contract Dental Surgeons in the Army is regarded by those having the measure in charge as assured, and as the provisions of the bill will become operative immediately upon its passage, the personnel of the force becomes at once a matter of paramount interest to all desiring the success of the movement to provide in peace and war efficient dental service for the soldiers of our army.

It will be remembered that one of the provisions of the bill is "That three of the number of dental surgeons to be employed shall be first appointed by the Surgeon-General, with the approval of the Secretary of War, with reference to their fitness for assignment, under the direction of the Surgeon-General, to the special service of conducting the examination and supervising the operations of the others."

Upon the character of the appointments to this Supervising Board the success of the entire movement is largely dependent. In addition to the necessary educational and professional qualifications they must possess executive ability of a high order, as not only do they conduct the examinations for the other appointments, but it is to them that the Surgeon-General will look for the organization of the forces whose operations they are to supervise. They will recommend for assignment the members of the force to their respective posts of duty, and must

in addition provide the working details of a system by which the maximum of good for the soldier can be effected with a minimum of interference with established military routine.

If the methods they institute prove cumbersome and ineffective, and if the dentists under their charge are found personally obnoxious or professionally unskilled, the permanency of dental service for the army will be seriously imperilled; hence the necessity for the greatest care in the selection of men to exercise these supervisory powers.

Two names have already been suggested, both excellent. One is Dr. Williams Donnally, of Washington, D. C., a gentleman who is held in the highest esteem both personally and professionally by his confrères in that city, and who as local member of the committee appointed by the National Dental Association to secure the passage of the Army Dental Bill has shown high ability as an organizer, and the value of whose services in securing the success of the bill is freely attested to by Representative Otey.

Another highly meritorious nomination is that of Dr. Robert T. Oliver, of Indianapolis, President of the Indiana State Board of Dental Examiners and member of the Faculty of the Department of Dental Surgery of the University of Indianapolis. Dr. Oliver has made a specialty of oral surgery. He served through the Spanish-American war, hence has already had some military experience, while his executive ability and powers of organization are well known to his friends. Were only names such as these presented as candidates for these important offices there would be no need for apprehension as to results. It is to be feared, however, that all nominations will not be of the same high character, and those to whom application is made for the endorsement of candidates should exercise the utmost care as to whom they give their support. No man should be endorsed simply because he is a good fellow whom the office would please, or one whom the pay would help, or one who as an active party worker is "solid with the boss" and is

therefore to be provided with a place. The interests at stake are too important to be put in jeopardy from motives such as these. Merit and ability are the only considerations which should have weight in the selection of men to fill places so important, with duties so exacting and responsibilities so great.

DENTISTRY FOR THE SOUTH AFRICAN FORCES.

According to the *London Dental Record*, "Mr. F. Newland-Pedley, who volunteered as Dental Surgeon to the Imperial Yeomanry Hospital, has taken three operating chairs with him and also a sufficiency of appliances and materials to keep two or three dental mechanics going in making splints for fractured besides oxygen, so no wonder," says the Record, "that his *impedimenta* filled a pantechnicon van and weighed about two tons and a half."

The *Record* further states that Mr. Newland-Pedley "Has arranged for a supply of skilled assistants should they be required. Some 15 men have volunteered to sail at short notice if wanted, and each would go armed with his set of dental instruments and dental engine. Some are students and some qualified men, but they are all able to do a good day's work, either at operating or mechanical work. As regards the students, the Royal College of Surgeons of England has consented to recognize six months' service in hospital at the seat of war as the equivalent of the ordinary curriculum, provided that the student can show that he has been properly employing his time.

"Among an army of about 200,000 men, I fancy that Mr. Newland-Pedley and his assistants will find plenty of work. From the method of 'taking cover' as much as possible while in action, the head of the soldier is the most exposed part of his body, and, therefore, injuries to the jaws must be of frequent occurrence. In addition to attending to these injuries, I am sure that amongst the various divisions of our army there is a plentiful number of cases of toothache in which the services of the skilled dentist will be gratefully appreciated."

Thus far the dental force in the English army appears to be of the volunteer civilian character, the English War Office having as yet taken no steps to provide for the establishment and maintenance of a corps of dental surgeons for army service.

ANNOUNCEMENTS.

KENTUCKY STATE DENTAL ASSOCIATION.

The thirteenth annual meeting of the Kentucky State Dental Association will be held at Louisville, beginning May 29th, 1900, at 9 A. M., and continuing three days.

Preliminary Announcement.

PAPERS.

1. Some Advantages of Non-Cohesive Gold, Tin and Tin Gold, Considered from an Operative and Prophylactic Standpoint. Dr. J. R. Clayton, Shelbyville, Ind.
2. Amalgam: Its Preparation, Instruments and Instrumentation in Filling Teeth. Illustrated by models. Dr. W. E. Harper, Chicago, Ill.
3. Oral Manifestations of Syphilis. Dr. T. C. Evans, Louisville, Ky.
4. X-Rays in Dentistry. Dr. L. E. Custer, Dayton, Ohio.
5. Subject to be given. Dr. S. A. Donaldson, Lexington, Ky.
6. Malaria as a Cause of Secondary Hemorrhage in Extraction of Teeth. Dr. J. P. Shaw, Russellville, Ky.
7. Orthodontia. Illustrated by lantern. Dr. C. DeWitt Lukens, St. Louis, Mo.
8. Orthodontia. Dr. E. D. Rose, Bowling Green, Ky.
9. One of the More Especial Duties of the State Dental Association. Dr. J. L. Sutphin, Greensburg, Ky.
10. Care of Deciduous Teeth. Dr. J. F. Meadors, Columbia, Tenn.
11. Subject to be given. Dr. I. B. Howell, Paducah, Ky.
12. Dental Education. Dr. Theo. Menges, Chicago, Ill.
13. Practical Dentistry. Dr. E. T. Barr, Bowling Green, Ky.
14. Troublesome Cases in Bridge-Work via Converging Teeth, Broken Facings, Mal-Occlusion, etc. Dr. U. D. Hulick, Cincinnati, Ohio.
15. Teeth. Dr. W. S. Williams, Uniontown.
16. Metallo-Plastic Work and Backing Porcelain Teeth with Gasoline. Dr. R. C. Brophy, Chicago, Ill.
17. The Status of Mechanical Dentistry; Is it to Become a Lost Art? Dr. O. G. Wilson, Franklin, Ky.
18. Disease of the Antrum. Dr. Adolph O. Pfingst, Louisville, Ky.

19. The Reproduction of Gum Tissue in the Interproximal Space. Dr. Geo. T. Carpenter, Chicago, Ill.
20. Subject to be given. Dr. J. H. Baldwin, Louisville, Ky.
21. Subject to be given. Dr. A. H. Peck, Chicago, Ill.
22. The Importance of Proper Physical Diagnosis in the Practice of Dental Surgery. Dr. J. Y. Crawford, Nashville, Tenn.
23. Gold Filling *vs.* Gold Crowns. Dr. W. T. McLean, Cincinnati, Ohio.
24. Antiseptics and Disinfectants. Dr. Geo. W. Cook, Chicago, Ill.
25. What Efforts are We Using to Better the Profession? Dr. M. H. Dailey, Paris, Ky.
26. Cast Aluminum Dental Plates. Dr. Willard Streetman, Cleburne, Texas.

CLINICS.

1. Oral Surgery. Dr. Wm. H. G. Logan, Chicago, Ill.
2. A Method of Backing Up Porcelain Crowns. Dr. E. D. Rose, Bowling Green, Ky.
3. Removal of Dental Pulp Surgically. Dr. J. Y. Crawford, Nashville, Tenn.
4. Soft Gold Filling. Dr. P. A. Pennington, Louisville, Ky.
5. Metallo-Plastic Work and Baking Porcelain with Gasoline. Dr. R. C. Brophy, Chicago, Ill.
6. A Compound Gold Filling Crown and Posterior Proximal with Matrix; A Combination of old and New Methods. Dr. B. Oscar Doyle, Louisville, Ky.
7. Porcelain. Dr. H. J. Goslee, Chicago, Ill.
8. Immediate Nerve Extraction with Eucaïne by Pressure, and Root Filling. Dr. S. A. Donaldson, Lexington, Ky.
9. Orthodontia. Dr. C. DeWitt Lukens, St. Louis, Mo.
10. DeTrey's Gold. Dr. C. K. Runyon, Jeffersonville, Ind.
11. Orthodontia, and Exhibit. Dr. Frank L. Smith, Chicago, Ill.
12. Contour Fillings with Soft Gold on Models. Dr. G. S. Junkerman, Cincinnati, Ohio.
13. The Use of Snow-Face Bow in Taking a Base Plate Bite. Dr. J. Q. Byram, Indianapolis, Ind.
14. Subject to be given. Dr. H. B. Tileston, Louisville, Ky.
15. Non-Cohesive Gold Tin and Tin Gold on Models. Dr. J. R. Clayton, Shelbyville, Ind.

16. A Few Cases in Orthodontia. Dr. J. S. McClurdy, Ft. Wayne, Ind.
17. Soft Gold Filling. Dr. Henry Pirtle, Louisville, Ky.
18. Subject to be given. Dr. W. E. Grant, Louisville, Ky.
19. Combination Gold Filling. Dr. E. L. Sanders, Louisville, Ky.
20. Open-Faced Crowns. Dr. B. G. Reese, Louisville, Ky.
21. Extraction of Teeth Under Local Anæsthesia. Dr. F. R. Wilder, Louisville, Ky.

The following gentlemen will give clinics, subjects to be stated: Dr. G. C. Roberts, Chicago, Ill.; Dr. F. L. Klingman, Louisville, Ky.; Dr. W. W. Barnes, Louisville, Ky.; Dr. A. B. Weaver, Louisville, Ky.

Twelve firms have secured space for displays.

The committee, in addition, have under arrangement other important clinics, and are making strenuous efforts to make this the best meeting ever held in the State and well worthy of attendance. Members of the profession are cordially invited.

F. I. Gardner, D.D.S., Secretary.

OKLAHOMA DENTAL ASSOCIATION.

The eighth annual meeting of the Oklahoma Dental Association will be held in the parlors of the Grand Avenue Hotel, at Oklahoma City, O. T., May 1st and 2d. An interesting programme, with numerous good clinics, will be carried out, and every effort made, both to entertain and benefit those present. The profession is cordially invited to attend. Secure receipts for transportation in order to get reduced rates.

A. D. Cage, Secretary.

LEBANON VALLEY DENTAL SOCIETY.

The Lebanon Valley Dental Society will be in annual session at the Allen House, Pottsville, Pa., May 15th and 16th, 1900. All Dentists are invited.

P. H. Filbert, Chairman.

TRI-STATE DENTAL ASSOCIATION, I. K. I.

The Tri-State Dental Association of Indiana, Kentucky and Illinois meets at Evansville, Ind., May 8th to 10th, 1900.

Elwood Smith, President, Mt. Vernon, Ind.

W. H. Brosman, Secretary, Albion, Ill.

MEETING OF THE OHIO BOARD OF DENTAL EXAMINERS.

The next meeting of the Ohio Board will be held at the Chittenden Hotel, Columbus, Ohio, beginning Tuesday, May 29th, 1900. Examination will be both theoretical and practical. Applicants are requested to bring instruments, rubber-dam, filling materials, etc., necessary for making fillings or doing such other work as may be required. Engines will be supplied by the Board.

For further particulars or application for examination write to
Dr. L. P. Bethel, Secretary, Kent, Ohio.

RECENT PATENTS RELATING TO DENTISTRY.

643443, Dental tool for expressing mercury from amalgam, David Aiken, Winnsborough, S. C.

643868, Denture, Willis H. Dwight, Le Mars, Iowa.

643898, Dental oven, Harry M. Hill, St. Louis, Mo.

644355, Fountain cuspidor, George B. Haycock, Chicago, Ill.

644970, Dental flask, Thomas G. Donaldson, Baltimore, Md.

644583, Artificial denture, John H. Doyle, Atlanta, Ga.

644705, Impression band for dentistry, George Evans, assignor to Evans Company, New York, N. Y.

644803, Artificial tooth crown, Henry D. Justi, Philadelphia, Pa.

644932, Dental tool, Clinton W. Miller, Chicago, Ill.

644640, Dental chair, Gideon Sibley, Philadelphia, Pa.

644641, Dental chair, Gideon Sibley, Philadelphia, Pa.

644642, Dental chair, Gideon Sibley, Philadelphia, Pa.

644643, Arm rest for dental chairs, Gideon Sibley Philadelphia, Pa.

644644, Back rest for dental chairs, Gideon Sibley, Philadelphia, Pa.

LABELS.

7379, "Thymol-Myrrh" for Tooth Paste, Charles Wright Company, Detroit, Mich.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

Questions and Answers *

Question 84. Does the New Jersey State Examining Board differ in any particular from other State boards, and if so what is the difference? Students appear to have a special fear of coming before this board. Have any measures been taken to bring about an interchange of licenses between New Jersey and other States?

Student.

New York and New Jersey have at last provided for an interchange of licenses between the two States. New York has put in a practical prosthetic examination and New Jersey, while retaining this feature, which we have found to be a very important one, has cut off the operating department of our practical examination, as we have found that there is very little fault to be found with the preparation the students receive in this branch. As to the theoretical examination of which so much has been said there is practically no difference whatever between it and the New York examination, both of which are probably of the same standard as the Pennsylvania examination. We have ten questions on each subject and I do not think there has ever been an unfair or catch question in any of our examinations. We get the reputation of being so stiff in our examinations because we were really the first State to give an examination of the character now in force in nearly all the States where licenses are granted through examinations.

By reference to the table on page 5 of our report for 1899 you will see that the percentage of failures is now very small. I trust that Pennsylvania will do her best to help along the interchange between Pennsylvania and the other two States; with this as a nucleus we could soon be able to bring in many more of the States and accomplish a great good for the whole profession.

As you know, I have been strongly in favor of the States interchanging licenses ever since I have been on our board, and believe that it is the only solution of a very difficult problem.

G. Carleton Brown, Elizabeth, N. J.

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

Question 85. I have a patient for whom I am treating a right inferior first bicuspid. I began treatment about three weeks ago. The tooth had a large amalgam filling in the distal side. The tooth was loose and the gum around was always highly inflamed. I removed the filling and found the tooth had been previously treated, but I found pus at the apex. I began treatment first with oil of eucalyptus, then oil of cassia. The tooth soon tightened and gave every evidence of a successful treatment when I carefully refilled the canal, and filled the tooth with temporary stopping to await results. About two days after the patient again began to suffer, experiencing no relief until I removed the filling from the canals. The tooth was painful and swelling was soon noticeable. I was very careful not to force any filling material through the apical end of the root. I have been led to believe that perhaps when the tooth was previously treated some years ago that the end of a broach might have gone through and broken off. Do you think such a thing probable? Will some one kindly advise me as to the best treatment in the future? I will say, however, that since I surmised such a probability I have been treating with iodine.

C. E. K., Philadelphia.

In question No. 74 February DENTAL BRIEF the writer relates rather an unusual condition, a condition which certainly may be considered out of the ordinary. It is not unusual at the present age to find an adult with one or two permanent teeth missing, or at least unerupted, but the case of a man 50 years of age with but two permanent teeth presents an extraordinary feature. This unusual complication no doubt is the result of the constitutional taint referred to by the writer. The spaces between the teeth are readily accounted for, being occasioned by the growth or elongation of the jaws to probably their normal dimensions. In view of the fact that nearly all the permanent teeth remain unerupted, it would seem that there had been almost a wholesale destruction of their germs, and this would result in a diagnosis different from the one arrived at by Dr. Locke. While it is an easy matter to differ with the Doctor in regard to his opinion, it is not so clear just what the diagnosis should be. I would suggest, however, watching the case, and noting if the pain complained of does not shift about after a time, the change in location being accompanied with probably a diminution or increase in its intensity. I would much appreciate a further report of the case.

W. W. P.

Question 86. Can you suggest some quick and effective method of removing hardened cements from the mixing slab?

The methods of removing hardened cements from the mixing slab depends very much upon the kind of slab employed. I take it for granted, however, that when no particular kind of slab is mentioned, it is a glass one, or some substance of a similar nature. The ideal glass slab is one similar to those intended for paper-weights, selecting one fully an inch and a half or even two inches in thickness, thus affording a firm grip on your block while using it. The simplest and most effective method of removing the cement is to wait until it has thoroughly hardened, and then by the aid of another slab of similar proportions, rub the two together, interposing between the two surfaces some abrasive substance such as pulverized pumice or sand. Aqua ammonia or any other alkaline solution acts as a solvent and much facilitates the process. The most satisfactory mixing slab with which the editor of this department is acquainted is that known as Spooner's pad or tablet. This consists of a series of specially prepared paper slips, the surface of the paper closely resembling glass, and answering in every respect as well as that substance. These are in successive layers and are torn off and thrown away as used. The under surface of the tablet is covered with a layer of sand-paper, to prevent its moving about during the mixing process. Try these and I think you will be well pleased.

Question 87. Can I obtain information in your department in regard to the following: A young man of good habits is under my care suffering periodically with what appears to be in the beginning of the attack a simple case of sore tongue. In the course of a few days a similar condition makes its appearance upon the lips, and they remain thus affected for some time. In the beginning the inflammation is present only on the margins of the tongue, or that portion coming in direct contact with the teeth; the irritation but slight at first gradually increases until a certain amount of sloughing results, this gradually passing across the dorsum of the organ, and to the lips. Certain foods, particularly those containing much acid, cause pain and smarting of the parts. After a time the indisposition gradually disappears, and several weeks or months may elapse before it recurs. There are a number of large amalgam fillings in the mouth. Could these in any way be the exciting cause of the disturbance?

F. C. Noyes, D.D.S., Mt. Sterling, Ill.

Practical Points.*

Sterilization of Rubber-Dam, etc.—Rubber stands boiling best if it is in a boric acid solution. *Jour. Am. Med. Ass'n.*

The Oil Stone.—Ordinary glycerin makes an elegant lubricator for the oil stone. It does not dry in and harden as oil does, and is easily cleaned off with water. *The Dental News.*

A Cement Syringe to be Used in Setting Crowns and Bridges.—After mixing the cement to the right consistency, place in syringe and inject into the canal. (Exhibited at clinic, and pronounced to be "just the thing.")

H. L. Crittenden, Dental Review.

Formalin.—Dr. Jack recommends formalin very highly in exposure of pulp preparatory to conservative treatment. He says: "I have frequently used, and have found good results from, a 5 per cent. solution when there had long been caries with a rather broad exposure. For recent exposure, when bacterial invasion in the dentin was less, I used a $2\frac{1}{2}$ per cent. solution.

A. S. Eschleman, Dental Cosmos.

Cocain Intoxication Caution.—A tampon moistened with a solution of cocain was placed in a right upper molar in a young man of twenty. In about twenty-nine hours the right hand became paralyzed, and aphasia developed with a few hallucinations. The lower members were not affected. The aphasia subsided in three days, and the hemiplegia in eight, but the hand was stiff for a month.

Bulletin Medicale (Paris).

The Protection of Nearly Exposed Pulp.—After the removal of the leathery, decomposed dentin, the layer of softened dentin nearest the pulp probably contains lactic acid, which should be neutralized by saturating with mild solution sodium bicarbonate, or weak ammonia water, or 5 per cent. sodium dioxid. Hydrogen dioxid in 10 per cent. neutral solution may be sufficient for surface disinfection, but it is well to saturate the layer with an antiseptic which may remain *in situ*. Dry with alcohol and warm air, and saturate with oil of cloves or engenol. Wipe out excess, and again dry. Varnish with the following, giving second or third coat:

R. Beta naphthol	1 gr.
Methyl alcohol.....	20 drops,
Added to $\frac{1}{2}$ oz. bottle of "Cavitine" varnish.	

The acid of zinc phosphate cannot pass through this varnish. Place asbestos or waxed paper over floor of cavity before last coat of varnish has completely dried. Introduce zinc phosphate, and if doubtful, complete filling with temporary stopping, and wait a few days.

Otto E. Inglis, Stomatologist.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

The "Fish Line" Method of Wedging.—In difficult cases, take a cambric needle No. 9, draw the temper, bend it, and thread with fine silk, attaching to the silk the line to be used in wedging. Pass the needle between the teeth, next the gum, and draw the line through. Instead of using a line of large size, a small one may be used, making it into a chain stitch.

F. Milton Smith, International Dental Journal.

Amalgam Cement Fillings.—In amalgamating the alloy, bring to ordinary plastic consistency, and then, when a very small quantity of cement has been brought to a creamy, sticky consistency, thoroughly incorporate plastic mass, and hasten to cavity. Coat with the amalgam, if practicable, though without this finish it will do better service than cement alone.

A. J. Flanagan, Dental Digest.

Why Pulp Die Under Metal Crowns.—This may occur under two conditions; decay occurring about the cervix through ill-fitting of the crown, or through thermal changes transmitted through a body of dentin too slight in extent to protect the pulp, and this only in cases where the crown has been too liberally denuded of enamel and dentin. For this there is certainly no necessity.

S. H. Guilford, Stomatologist.

Special Care of the Teeth in Sickness.—When taking drugs, especially acids, the only sure method of preventing injury to the teeth is the use of an alkaline wash after swallowing the acid. In case of sickness, acids are formed in the mouth by fermentation, which are but little less effective than the medicinal acids. When a patient suffers from any disorder affecting the mucous membrane of the mouth, rinse with a mild antiseptic wash every few hours, and brush the teeth morning and evening. It would be well to also rinse the mouth with milk of magnesia, or use a small piece of lump magnesia soaked in a 3 per cent. solution of pyrozone, chewing thoroughly before ejecting.

Joseph Head, Therapeutic Gazette.

Abnormal Space Between the Superior Central Incisors.—This is frequently due to an abnormal attachment of the *frenum labii*, which will be found to be thickened, with its attachment to the gingivæ continued through between the incisors. Simply severing this ligament will sometimes be sufficient, but a deep incision with a cautery knife at white heat, splitting the cord, offers the advantages of contraction of tissue. The tissue should of course be anesthetized before making the incision, carefully avoiding wounding the peridental membrane, operating only upon the abnormal tissue; a cleaning should precede the cautery. The teeth can then be drawn together and mechanically supported for several weeks—or, it may be, months.

E. H. Angle, Dental Cosmos.

Broken Nerve Broaches.—Nerve broaches broken off in a root-canal can be easily removed after a dressing of 25 per cent. pyrozone, applied on cotton, has been left in the canal for a few days.

S. L. Walton, Items of Interest.

Generating Electricity.—"Would it not be better to speak of batteries as developing electricity? They do not 'generate' the electricity, because it is there in a latent state. Electricity was generated when the world was made."

J. E. Nyman, Dental Record.

Formagen Paste.—The formaldehyde in this paste is said to have a peculiar action upon septic pulps, and to destroy germs in infected pulp horns. The writer's experiences, thus far, are favorable to its use in contact with softened dentin. Engenol is an ingredient in this paste. When infection is suspected, it is worthy of trial.

Otto E. Inglis, Stomatologist.

Permanent Fillings in Young Teeth.—While the normal development of dentin has not been completed, the entire external portion of the tooth has been fully formed. Continued development produces changes in amount, not in character. The calcified dentin does not change perceptibly after it is once formed. At a certain period the dentin may be only one-half as thick as it will be later on, but that which is formed is perfectly formed, and as capable of holding a gold filling, or any other filling, as it will ever be.

F. B. Noyes Dental Cosmos.

Fetal Tooth Nutrition.—Food for the mother should be rich in phosphorus, magnesia, potash, soda, sulphur and lime. Without these elements in sufficient quantity the child is born enfeebled in brain, nerve and bone tissues, and particularly the tissues forming the teeth. While all other deficiencies may be improved or remedied after birth, no improvement can be made or defects overcome in the teeth by any means known to us. As the crowns of the teeth are formed before the child becomes a breathing being, if lacking in mineral salts, so they remain until lost by the ravages of decay.

Wm. A. Mills, Dental Cosmos.

Gold and Tin in Combination.—The chemical combination of gold and tin in the mouth, long after the work has been done, seems not to be generally understood. By electrolytic action, induced by the fluids of the mouth, there is an interchange of atoms. By mutual induction the gold and tin unite, forming an alloy resembling amalgam in hardness and color, and as durable. As the hardening depends upon moisture, the rubber-dam is not necessary. For those who do not wish to use amalgam, an unobjectionable substitute may be found in gold and tin foil, used in alternate layers rolled together, the alloy does not extend in either metal beyond the thickness of one or two layers of foil.

S. B. Palmer, Indiana Dent. Journal.

Hydronaphthol Wash for Pyorrhœa Alveolaris.—

R.	Hydronaphthol.....	fl. ʒij.
	Tinct. Calendula.....	fl. ʒiv.
	Aq. dist. q. s. ad.....	ʒviiij.

Grafton Monroe, Dental Review.

Porcelain Inlays in Proximal Surfaces in Front Teeth.—It is an easy matter, after the cavity is prepared, to fill with oxyphosphate, using the porcelain only as a thin veneer. Then the teeth need not be wedged so far apart, and scarcely any undercut is required.

S. G. Perry, Dental Cosmos.

Aluminum Lining for Rubber Plates.—Dissolve unvulcanized rubber in chloroform to a fluid consistency and add aluminum powder until the original rubber color is lost and the bright metallic color of aluminum prevails. After opening flask, paint the model with the aluminum mixture and pack as usual. Final effect of finished plate is good, and process prevents so-called "rubber sore mouth."

W. H. Fox, Dental Review.

Save the First Permanent Molars.—I had a case where the crown had decayed, leaving the roots separated. After treating the roots, I adjusted a gold crown to each root, treating each one as a separate bicuspid root. The bite was extremely short and brought no extra strain upon each root. This was very effective. The patient was eight or nine years old.

Edwin E. Davis, International Dental Journal.

To Solder Cusps to Backing for Porcelain Facing.—Convenient tweezers are made from wire tweezers with ring beaks. Flatten one of the rings and straighten the other, bending it at right angle to the other beak. Catch cusps and backing with Parr's flux, and remove from facing. Cover back of backing with rouge or whiting to keep solder from flowing there. Place the backing in the flattened ring, with the right angle point on the cusps; pressure will make perfect contact between cusps and backing. Will require less heat in final soldering, and consequently less liable to fracture facings.

H. B. Bull, Items of Interest.

Some Uses of Hydronaphthol (Seabury & Johnson's).—Seven grs. to 1 oz. alcohol; very useful in cleaning cavity prior to insertion of filling, especially in posterior teeth.

Chloro-percha solution with hydronaphthol forms desirable root filling; oxychloride with hydronaphthol also fine for root filling.

Paste of hydronaphthol with oxide powder and couple of drops of oil of cloves and creosote, excellent over sensitive pulp not exposed, to prevent irritation following filling.

One-fourth hydronaphthol bulk in oxyphosphate fillings, fine non-irritating cement for tooth previously sore from leaky filling.

Grafton Monroe, Dental Review.

Sterilizing Partially Disorganized Dentin in Deciduous Teeth.

—After securing immunity from invasion of moisture, sterilize with wood creosote, carbolic acid or a eugenol solution of iodoform—preferably the latter. Apply a bit of asbestos paper saturated with the sterilizing solution, and over this an oxysulphate filling.

L. L. Dunbar, Pacific Dent. Gazette.

Hypertrophied Gum.—When hypertrophied gum presents between teeth and overlapping edge of cavity to be filled, ethylate of sodium, applied with a pellet of cotton, will destroy the tissue; melting it into a gelatinous mass. It comes in the form of powder, which, dissolved in alcohol, forms a red, syrupy liquid, exceedingly corrosive.

S. George Elliott, Dental Review.

Mechanical Root-Canal Cleansing.—Apply rubber-dam; drill used only to open mouth of canals. Soak up liquid contents of canal; flood with 20 vol. solution hydrogen peroxid, and gently rake upward with bristle, avoiding piston action. Bubbles of gas form and bring debris to surface. Dry out, and repeat until gas ceases to come away.

John Ackery, Dental Record.

Bridge Abutments.—If the tooth which is to serve as abutment is much tipped in position, instead of cutting away correct the malposition of the tooth, as is done in regulating, bringing it into an upright position, thus avoiding excessive cutting and consequent danger to pulp vitality. The bridge, when inserted, will hold the tooth in position.

S. H. Guilford, Stomatologist.

A Simple Water Test.—Into a ground-glass stoppered, perfectly clean bottle put three ounces of the water to be tested, and add ten grams pure granulated white sugar. Cork tightly and place in window, exposed freely to light, but not to direct rays of sun. Do not disturb, and keep at temperature or near 70 degrees Fahrenheit as possible. If water contains organic matter, within forty-eight hours whitish specks will be seen floating about, which will settle in flocculent masses. If water very bad, odor of rancid culture in a week or ten days. Not fit for potable purposes.

Iowa Health Bulletin.

Formalin Cataphorically.—A left, upper, first molar had been under treatment intermittently for four months. Every attempt to fill roots and seal up cavity, symptoms of previous trouble returned. It was decided to try formaldehyde cataphorically. Rubber-dam adjusted and root-canals thoroughly dried by hot air. A probe electrode was wound with a few threads of cotton, dipped in formalin full strength, inserted in one of the root-canals, and current turned on for five minutes. All the canals treated and tooth filled. Everything quiet since (February to October). Treatment by Dr. Barrows. Reported by

Dr. F. W. Low, Dental Cosmos.

Securing Certainty in Covering Cervical Margins.—Between matrix and tooth place a mat of tin and gold and wedge firmly to place. The portion of the mat which extends into the cavity is then laid against the cervical wall, and forms the first layer of the filling. Also overcomes any danger of checking the margins in applying matrix. *F. W. Stephan, Dental Review.*

Recurrence of Decay.—No tooth may be considered safe from recurrence of decay around proximal fillings unless the cervical wall has been carried sufficiently rootwise to bring that portion of the filling under the gum, and the cervico-labial and cervico-lingual angles extended to a point where these margins of the filling are kept clean by friction.

C. N. Johnson, Dental Cosmos.

Disinfection of the Mouth.—Fifty per cent. alcohol is not only powerfully bactericidal, but has a specific healing effect on mucous membrane of the mouth, producing an arterial fluxion under the influence of which the venous stasis of the diseased gums disappears, and they return gradually to normal. Because of smarting it is impossible to rinse effectually, but the gums being less sensitive, it can be applied by means of a soft tooth brush dipped in the alcohol. *C. Roese, Muench. Med. Woch.*

The Countersunk Molar as a Composite Crown.—Prepare roots with surface of stumps ground down level with surface of gum. Fit pins to root-canals, having projection made or loop. Burnish platinum disc to surface of stump, perforate for pins, which solder to place. Grind a countersunk molar to as good a joint as possible, adjust and wax to disc, using vulcanizable rubber to fill all interstices; pack in any ordinary flask, vulcanize and finish up. Vulcanite fills up what may be wanting in badly decayed root. Set to place with cement or gutta-percha as preferred.

Jas. B. Hodgkin, Items of Interest.

“Alveolotomy” in Tooth Regulation.—This operation consists in dividing the alveolus on both sides of the tooth which is to be moved, using hand saw, and cutting through the cancellous structure which forms the inner portion of the dental septum, as far as the apex of the tooth. With suitable forceps the alveolus is freed with the tooth, is then forcibly bent outward, inward or sideways, as the case may be, fixing it in the new position until the divided bone shall have reunited. A metal splint struck up over the teeth, and fixed in place with cement, is preferable to the ordinary retention plate, which is not cleanly unless frequently removed, each removal jarring the tooth and retarding bony union. To insure success, the operation must be performed aseptically and the wound kept aseptic.

W. H. Dolomere, Dental Record.

Miscellany.

Iodin in Fish.—Some recent tests have brought to light the fact that iodine occurs in certain articles of human food in small quantities, and as it occurs in fish and shellfish, it has recently been suggested that this fact may be the reason why fish is so valuable a food for invalids. Traces of iodine have been found in cod-liver oil, and it is possible that it, together with the bromine and phosphorus, contributes to its tonic effects.

Ozone by a New Process.—M. Henri Moissan has recently devised a new process for the production of ozone, which he has described in a communication to the Paris Academy of Sciences. It consists of the decomposition of water by fluorine, and the operation takes place when the water is at the freezing point and has fluorine passed into it rapidly. The oxygen is set free, and when analyzed is found to contain a percentage of ozone which in some experiments was as much as 14 per cent. The ozone thus produced is said to be practically pure, and there is a possibility that the new process will be available on a commercial scale.

An Embarrassing Question.—Charles Bradlaugh once engaged in a discussion with a minister. He insisted that the minister should answer a question by a simple "Yes" or "No," without any circumlocution, asserting that every question could be replied to in that manner.

The reverend gentleman rose, and said: Mr. Bradlaugh, will you allow me to ask you a question on those terms?"

"Certainly," said Bradlaugh.

"Then, may I ask, have you given up beating your wife?"

Woman's Journal.

The Custom of Dharma.—The science of sociology explains many curious customs which might at first glance appear to have no foundation in reason. The practice of Dharma, in India, for instance, has recently been the subject of special study by Dr. S. R. Steinmetz. This custom is many centuries old, and seems difficult to explain. When a debtor fails to pay his debts, his creditor goes and sits before his door, and remains there, refusing to eat a morsel until he is paid. If the debtor does not pay, the creditor will actually starve himself to death. It would seem at first sight that a really heartless debtor might not be moved in this manner; but the usefulness of the custom becomes at once apparent when it is known that if the creditor actually does die of starvation in front of his debtor's door, the latter is held guilty of murder, and, after the manner of the country, the family of the dead man are entitled to kill the debtor on sight.

For Aphthous Patches in Infants.—

R. Sod. boratis.....	ʒi
Tinct. benzoin.....	ʒi
Syr. rubi. id.....	ʒx
M. Sig. External use.	

The patches should be touched five or six times a day with a bit of cotton saturated with the above.

A New Explosive.—A new nitroglycerin explosive has recently been employed in Europe, which has a low inflammability, and is quite as insensible to the effects of friction or shock as any other kind of explosive. It also can be stored in a damp atmosphere without suffering deterioration. It is made by mixing one part, by weight, of collodion with four parts of oil of turpentine, and then gently heating the mixture. Thirty parts of nitroglycerine are added, and the temperature is raised, the mass gelatinizing slowly. To the gelatine thus produced forty parts of saltpetre are added, together with twenty-four parts of sulphate of magnesia and one part of carbonate of soda, which have previously been thoroughly mixed together. The product is packed and treated in the same way as ordinary gelatine dynamite, and has numerous advantages over that substance.

Umbrella Stick in the Antrum.—M. F., aged twenty-nine, a millworker, consulted Dr. John Frissell, of Philadelphia, in July, 1875, for a running sore on his face, that originated in a fight three years before, when his antagonist struck him a severe blow with his umbrella. The wound had never healed, although but a small opening remained. The patient had been under the care of several physicians, all of whom failed to discover the cause of the suppurating sore. After several examinations, Dr. Frissell detected a foreign body of metal and wood, which he succeeded in removing with forceps. This proved to be the end of the umbrella with its brass tip and ferrule. Dr. Frissell, in a report to the State Medical Society, gave the following additional facts: "In a quarrel, three years before, this man had been struck with such force by the umbrella that the end of it penetrated the superior maxillary bone at the canine fossa, passing backward through the antrum, striking the pterygoid process of the sphenoid bone, and proceeding back to the side of the cervical vertebra a short distance below the atlas and the foramen magnum of the occipital bone. The ferrule, the end of the staff and the capping were driven in at least four inches. The staff was broken off close to the brass capping, and the skin closed over the whole, leaving only a small opening through which purulent fluid escaped. The man enjoyed tolerable health, and was able to work, with this mass of wood and metal in his head and neck for three years." This man is still living in excellent health.

Phila. Med. Jour.

A Chemical Epitaph.—

Poor Bennie now is dead and gone,
His face we'll see no more;
For what he took for $H_2 O$,
Was $H_2 SO_4$.

Starch and Tuberculosis.—F. G. D. Drewitt called attention to the fact that in the zoölogical gardens granivorous birds die in large numbers from tuberculosis, while meat-eating and fish-eating birds die much less frequently from that disease. Carnivora rarely die from tubercle, but caged animals do, whatever their dietary. The conclusions are obvious that human beings close-housed and fed largely upon starches will be especially susceptible to the ravages of consumption.

A Human Ostrich.—A young man, twenty-two years of age, was taken ill recently, in Brooklyn, with symptoms of gastritis. By means of the X-ray various articles of hardware were located in his stomach. January 14th he submitted to gastrotomy, with the result that there were taken from his stomach two keys, six hair-pins, one hundred and twenty-eight common pins, ten two-and one-half inch iron nails, two horseshoe nails, three chains, one brass and two nickel, and a finger-ring with a stone setting.

A Decision of Interest to Doctors.—A decision of unusual interest to the medical profession throughout the world has lately been handed down by the United States Supreme Court. In 1878 Dr. Benjamin W. Hawker, a legally qualified practitioner of the State of New York, was convicted of a felony, viz.: performing a criminal abortion; and was sentenced to imprisonment for ten years. At the expiration of his time of servitude he attempted to resume practice, with the result that the Medical Society of the County of New York brought suit against him for violation of a State law. His counsel argued that a construction of the law making it illegal to practice medicine after conviction of a felony is unjust and unconstitutional, inasmuch as it in effect adds a new punishment for the crime. The people contended, however, that the State has a right to exact good moral character as one of the qualifications for the practice of medicine. The first trial resulted in a verdict of guilty and the imposition of a fine; the case was appealed, and the judges of the Appellate Court decided to set aside the conviction, one judge (Ingraham) delivering a vigorous dissenting opinion. On a final appeal to the United States Supreme Court nine judges confirmed the conviction and sustained the constitutionality of the law, citing many decisions in support of their position. This decision will, therefore, stand as law for all future time, and will debar any man or woman convicted of a felony from practicing medicine.

Am. Jour. Surg. and Gyn.

A New Alloy.—A new alloy has recently been patented in Germany, which is intended to take the place of gold. It consists of copper and antimony in the proportion of 100 to 6, the antimony being added to the melted copper. After the antimony has melted, and a union between the two metals has occurred, some charcoal ashes, magnesium and lime are added to the molten mass in the crucible. The alloy can be rolled and worked like gold, and will withstand for some time acid and ammoniacal vapors. It has a color quite similar to gold, which it does not lose by oxidation.

Recovery After a Broken Neck.—Two months ago, Bartholomew Moriarity, sixty-five years old, fell from a scaffold in Dobbs Ferry, and, although his neck was broken, and he was partially paralyzed, he walked to Yonkers, a distance of six miles, and entered St. Joseph's Hospital. Quite naturally, his story was at first received with incredulity, but an examination with the X-rays showed that the man had really sustained a fracture of the cervical vertebræ. His neck and shoulders were incased in plaster of paris after having removed the broken fragment, and satisfactory union of the fracture was secured. The plaster dressing was removed three weeks ago, and the man was discharged cured last week.

Phila. Med. Jour.

Coal-Oil and Mosquitoes.—At the Society of Biology, January 20th, Phisalix spoke of the destruction of the larvæ of mosquitoes, a problem which has assumed great importance since it is known that they are agents in the spread of malaria. The best means thus far tried to accomplish this end is the pouring of coal-oil on the surface of ponds. This method has been carried out with success in America, where it has been found that one-half ounce of oil is sufficient to kill the larvæ of a square yard of water. The death of the larvæ is caused by the introduction of the oil into their tracheæ. The most favorable season in which to make use of this means is the spring-time.

Dressing Burns with Silver Leaf.—A trial is being made at Bellevue Hospital of a novel method of dressing burns, first introduced at the John Hopkins Hospital. It consists in covering the burned surface with silver leaf, using no adhesive material. As far as it has been used in Bellevue it has given satisfaction. As it only adheres to the unbroken skin, it affords a good protective dressing which can be renewed without causing pain. This freedom from pain and shock constitutes its chief value as a dressing for burns. It is also being used at present in the new Albany Hospital for dressing the wounds in cases of abdominal surgery. The silver leaf is held in place merely by a retaining gauze bandage.

Phila. Med. Jour.

Siberian Cold.—Mr. L. Licham, a California engineer, says the Siberian winter cold is of a dryness incomparable. Even the latent humidity in the air—so imperceptible, that no instrument of precision known to science is capable of registering it—during the superb sunny days of midwinter, is manifest by being seen floating in the air, during the days of intense cold, in the form of minutest ice crystals. Nature's unique cold here freezes everything—even unto the latent moisture; and under this condition, certain compositions of metals will expand.

Frequently, he says, during the intense cold of the months of December, January and February, I observed the rails on the Siberian Railway so jammed up against each other by expansion that the ends were beginning to work up, but were kept down by being jammed down by the passing cars. For length after length, versta after versta, the expansion was such that a pin could not be thrust anywhere between the rail ends.

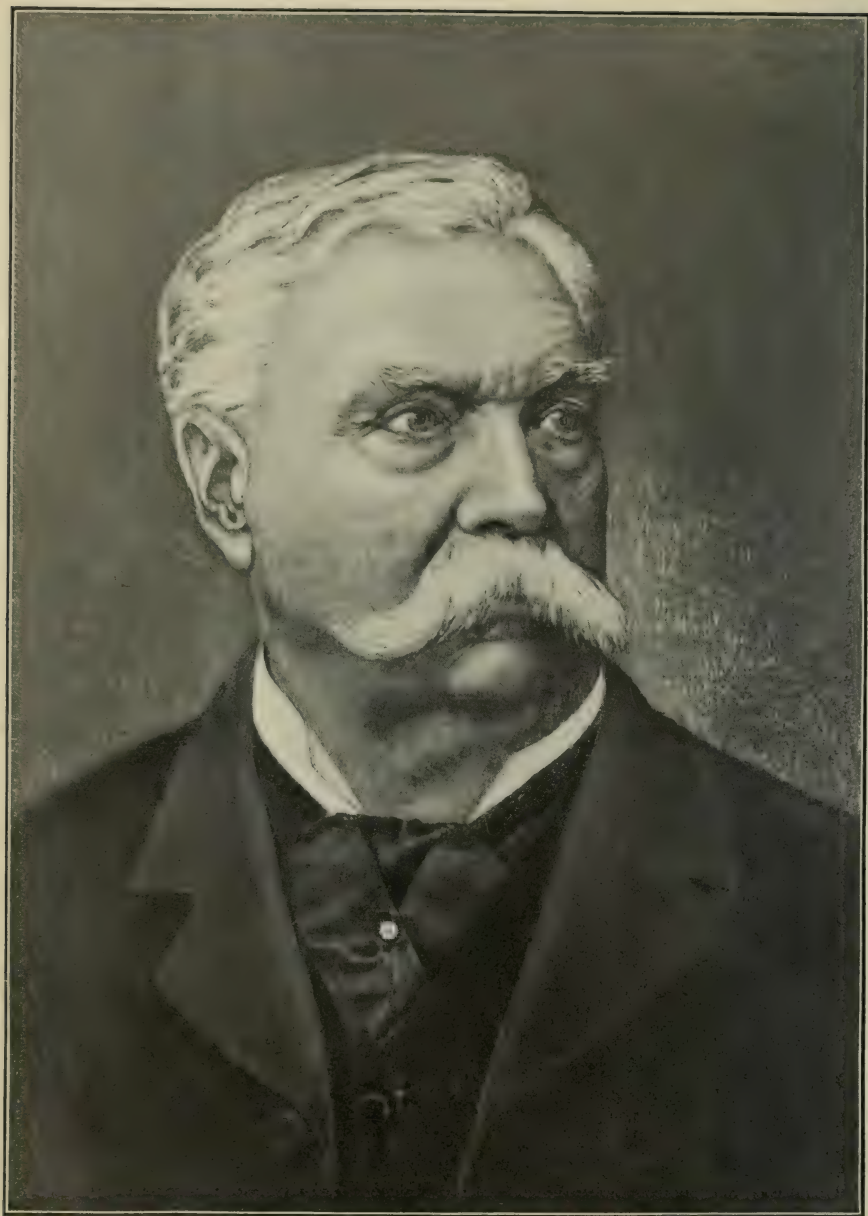
Latent Survival After Apparent Death.—J. V. Laborde has continued his study of apparent death, and now announces that in the extinction of the vital functions—the death of the organism—there are two phases. The first is the suspension of the functions essential to the maintenance of life, respiration and circulation, with the persistence of the properties of the tissues and organic elements. The latter remain latent, however, with no external manifestations, although some can be detected with radiography and tracings. During the second phase these functional properties disappear in turn; first, the sensory property becomes extinct; secondly, the motor function, and third and last, muscular contractility. Systematic traction of the tongue has revealed a persistence of latent life for a length of time hitherto undreamed of, and renders resuscitation possible at any time before the latter part of the second phase, even as late as after three hours of apparent death. Traction of the tongue by reflex action starts muscular contraction again, and reestablishes respiration and circulation even without air. Laborde described, at a recent meeting of the Paris Academie de Médecine, the dramatic revival, by traction of the tongue, of a girl of thirteen, who had just died of a scrofulo-tuberculous affection. Respiration and circulation were completely reestablished in twenty minutes, but the organic changes which had induced death precluded any permanent restoration. He has found that excitation of the superior laryngeal nerves in normal conditions arrests the respiratory phenomena, and induces asphyxia, while in asphyxia it has the opposite effect, starting the mechanism again. Continuous and sustained traction of the tongue is most effective in arresting the function, and intermittent or rhythmic traction in starting the arrested function. Consequently, continuous traction is most effectual in controlling hiccough.

Jour. Amer. Med. Ass'n.

Superstition.—The different nations have different superstitious practices to be carried out at the time a baby is born. The English wish the baby misfortune, persuaded that fate always accomplishes the opposite of one's wish; the Irish keep off all harm by a belt made of woman's hair; the Scotch put a knife and a pincers in the cradle; in Holland, they put bread, meat, salt and garlic in the cradle; in Brittany they pull the child's limbs till they crack, they bathe its head in olive oil, and moisten its lips with brandy; the Roumanians tie a red ribbon about one foot of the newly born child; the Turks drop water and earth on its forehead; the Greeks, taking the child in their arms, turn, sing three times before the hearth, and in Spain they stroke the baby's face thrice with a willow branch. *Phil. Med. Jour.*

Pneumatic Device.—An ingenious device has recently been invented in France by M. L. Moissenet, to be used with portable drills and to take the pressure off the drill in places where it is not easy to fix a drilling pillar or other device. It will also take the place of the powerful electro-magnets that have been employed for this purpose, but have been found too cumbrous and heavy. The new invention consists of a pneumatic appliance by which the necessary adhesion is secured by suction, and the "sucker" consists of a gun-metal frame supporting a leather diaphragm. The space below this is connected with an exhaustor, and the vacuum can be maintained for 15 minutes with but little loss. The weight of a sucker-block, which gives an effective adhesion of over one ton, is less than twenty pounds.

A Dentist for the War.—Mr. Newland Pedley, F.R.C.S., L.D.S., has volunteered for the front, and will join the Imperial Yeomanry Hospital. We hope he will take some dental assistants with him, and that they will be the means of relieving poor Tommy Atkins of much suffering, besides being able to make appliances for fractured jaws. When the Americans started operations in their late war with Spain, so many of their men were incapacitated through toothache that it was found necessary to appoint dentists to the troops in the field. In the late Soudan campaign the same inconvenience was encountered and had to be solved by the employment of dental services. In the Chitral campaign the men's teeth were neglected; consequently, we read in the newspapers that many men were quite unfitted for service through toothache. Nothing should be considered too unimportant to secure the comfort of our soldiers, who are risking their lives for their country, and in addition have an enormous amount of discomfort to put up with without the agony of toothache. We hope that the time is fast approaching when army dentists will be part of the organization which goes to make up a perfect fighting machine.—*British Jour. of Dental Science.*



Norman W. Kingsley

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ORIGINAL COMMUNICATIONS.

THE ADAPTATION OF ARTIFICIAL DENTURES.

By J. Clarence Salvas, D.D.S.

In the realm of prosthetic dentistry there are few factors requiring as much skill and scientific thought as the adaptation of artificial dentures. The success herein obtained depends on the attention given to details. To take an impression and send it to the laboratory without examining the character of the mouth and without treating the impression and cast as existing conditions may suggest, is to violate an important principle which renders the attainment of successful results very doubtful. Though success is often obtained regardless of any attention given these points, such success may generally be attributed to the presence of the "vacuum chamber," by which certain inaccuracies of workmanship are often obliterated.

The "vacuum chamber" and its various modifications which have been in use for over half a century, has been, and to this day is, by many of the profession regarded as an indispensable, or, I might say, an infallible factor in obtaining satisfactory retention. In this connection its value is certainly overestimated, as the idea of establishing a vacuum of any permanency in the mouth is obviously an absurdity. Its efficacy as such is analogous to conditions produced in the glass-tube experiment, in which, by exhausting the air and applying the tube to the lips, the tissues will be drawn in with sufficient force to support the tube until it drops off, owing to the air yielded by the tissues upon which the vacuum acts. This is exactly what takes place in the case of the denture, and conclusively shows that its utility

is but transitory; in other words, that it sustains the plate until a more or less perfect adaptation is secured, its permanent retention being due to adhesion; and there is no kind of a cavity or space which secures such permanent adhesion and gives so complete a vacuum as perfect contact. A consideration of the parts involved must convince the observer that the tender, sensitive tissues cannot long tolerate even a partial vacuum. Instances are not wanting where a vacuum, even slight in degree, has been attended by decided pathological results.

The natural law governing the phenomenon of adhesion, that two perfectly fitting surfaces with an intermediate fluid will adhere with force equal to nearly two pounds to the square inch, independent of the atmosphere, is the basis on which artificial dentures should be constructed. To obtain permanent adhesion, absolute contact and uniformity of pressure is a preëminent requisite, and may be secured by preparing the impression and cast in a manner to compress the soft and thick portions of the alveolar ridge and hard palate, and by relieving the pressure on the hard, protruding, bony surfaces characteristic of the palatal ridge. The strength of the adhesion is influenced, in a great measure, by the conditions of the mouth, that is to say, a plate in a small, rigid and dry mouth will hardly sustain five ounces of displacing force; while on the other hand, a plate in the same mouth, if moist and comparatively yielding, will sustain ten to fifteen ounces.

Previous to constructing a denture the mouth must be thoroughly examined. The importance of this cannot be overestimated. With the finger or blunt instrument note the conditions of the tissues where they are hard and rigid or soft and flexible, also where they are very tender. Ascertain approximately the depth to which the soft tissues will yield, as the amount to be scraped from the impression and cast depends on the relative hardness and softness of the tissues.

The accompanying figures serve to illustrate the method of preparing the cast and impression of a mouth, the tissues of which are uniformly rigid. In this case the palatal ridge is hard and prominent, but has on either side a small area of soft, yielding tissue. Pressure of the plate on the posterior, two-thirds of the palatal ridge is relieved by scraping the impression at points shown in Fig. 1, A, B. Fig. 2 represents the cast, with shaded parts corresponding to the soft tissues, where compression is

desired. To affect this the cast is scraped at points indicated by AA, BB, CC, CC.

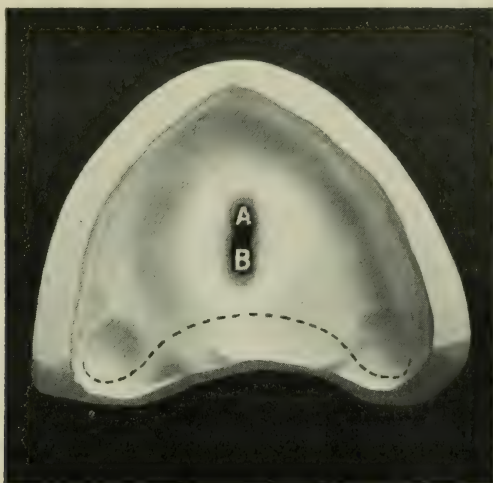


Fig. 1.

It is important to have the plate line as high as possible, especially over the canine prominence, and the cast should be

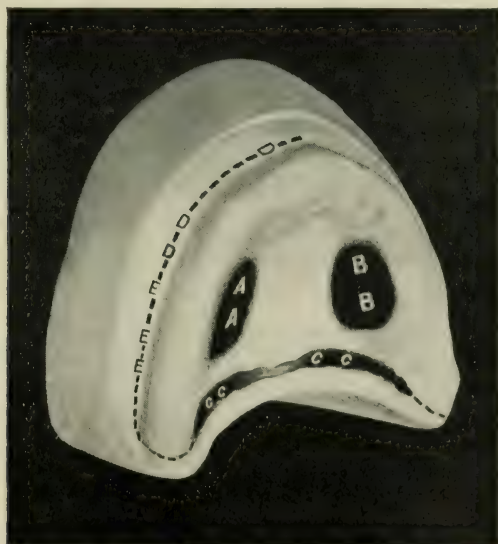


Fig. 2.

scraped along the plate line where the tissues will permit. Fig. 2 DDD indicates the points where greater compression is se-

DENTAL BRIEF.

cured, while *EEE* represents the very tender surfaces that will tolerate but the slightest compression. It is a common error to allow the denture to fit too close on this portion of the alveolar ridge, and it is equally inexpedient to reduce the plate to a knife-like edge, which invariably lacerates the tissues.

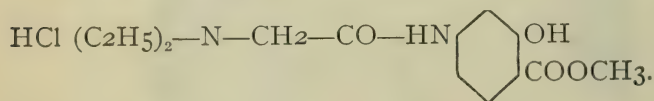
A denture constructed upon this principle will require several days' wearing to become perfectly adapted. The plate will then be in absolute contact with the mouth, and with more positive pressure on the yielding parts, and through the agency of the fluids between the plate and mouth, adhesion is attained.

The impression of a uniformly rigid, flat mouth needs but the slightest modifications to produce a perfect fit. It is clear, therefore, that the essential and salient feature of this method of adapting artificial dentures is absolute contact and uniformity of pressure, the former being secured by a perfect impression, the latter by the means above described.

NIRVANIN AS A LOCAL ANÆSTHETIC FOR EXTRACTION.

By A. W. Strecker, D.D.S.

Nirvanin is a soluble form of orthoform, and has been given the complex chemical name "hydrochlorate of diethy-glycocol-paramido-ortho-oxybenzoic-methylester" by its discoverers, Prof. Einborn and Dr. Heinz. Its rational formula is



A solution can be made either in sterilized water or a physiological salt solution. It is non-toxic, has no effect on pulse or respiration, and is antiseptic.

REPORT OF CASES.

Mrs. W., aged forty-three years. Under a physician's care for nervous disorder. The following roots were extracted: In the upper maxilla on the right side a central incisor, a second bicuspid and first molar; on the left side a second bicuspid and first molar. Four minims of a five per cent. solution were

injected on the labial and palatal aspect of the tooth, using two minims to each buccal root of the molars. After waiting three minutes I began extracting with the first and second tooth, the patient complained of pain, but not with the remainder. At a subsequent sitting I removed the following roots from the lower maxilla: the first molar on the right side and the first, second and third molars on the left side. I injected eight minims to each tooth, injecting four minims over the mesial root, and allowing it to anæsthetize the buccal root by infiltration; after waiting five minutes, I began extracting; the patient felt no pain.

Miss McW., aged twenty-four years, presented herself, complaining of severe pain in the region of the second bicuspid, lower maxilla, left side. The tooth had been crowned, but the crown had broken off two years before; I found the pulp canal filled with cement. All indications pointed to an abscess. I injected fifteen minims of a five per cent. solution. The gum was not sensitive to touch after five minutes; but as applying the forceps to the root caused severe pain, I waited three minutes longer. On again applying the forceps the root was extracted with but slight discomfort to the patient. I also extracted the first and second molar on the left side, which were firmly attached, and the cuspid on the right side, which was loose. Twenty minims were injected for the molars, eight minims for the cuspid. Five minutes after the injection the molar was extracted without discomfort to patient, but the cuspid caused severe pain. I have since noticed that the action of nirvanin seems more satisfactory where there is a firm attachment than where the root is loose.

Mrs. S. W., an anæmic patient, fifty-five years of age, was under my care for pyorrhœa. The third molar in the right maxilla was loose, in malposition, and slightly decayed, and I decided upon extraction. Twelve minims of a five per cent. solution were injected. Upon attempting extraction after five minutes, the pain was very severe. I then injected eight minims, and after three minutes five minims more; in all, twenty-five minims. After waiting three minutes I extracted the tooth; the patient assured me that she felt distinct and sharp pain. Six days later I removed the root of the left lower second bicuspid; the root was firmly anchored. Eight minims of a five per cent. solution were injected. After five minutes I extracted the tooth without any discomfort to the patient.

Miss W., aged twenty-five years. I extracted the roots of both lower third molars, using twenty minims of a five per cent. solution. I also removed a small tumor between the cuspid and first bicuspid upper right maxilla, using fifteen minims of a five per cent. solution. After eight minutes the tumor was removed. Carbolic acid was then freely applied. The patient experienced no discomfort whatever.

For Mrs. J. F., aged twenty-one years, I extracted the following roots, all in the upper maxilla: both first bicuspid, left central and right lateral incisors. Twenty-five minims of a five per cent. solution were used. Extracted after three minutes; pain was felt in the first tooth only, doubtless due to my commencing to extract too soon.

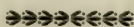
Mr. H. S., aged twenty-two years, presented himself to have mouth put in healthy condition. I found it necessary to extract the following roots, all in the upper maxilla: four incisors, first and second right, and second left bicuspid. Sixteen minims of a five per cent. solution were used for the anterior teeth; on the labial surface four minims for the right lateral and left central were used; on the palatal surface reversing, depending on infiltration to anæsthetize the intervening space; eighteen minims were used for the bicuspid. In the first tooth a slight pain was noticed; in extracting the second tooth it was barely perceptible. No discomfort whatever was experienced upon the other teeth being extracted.

Miss S. H., aged nineteen years. Patient was very nervous. I extracted the roots of both first and second molars, right and left side, and second bicuspid on right side. I used thirty-five minims of a five per cent. solution. The patient complained of slight pain upon extracting the first and last root, but did not feel any pain during the extraction of the remaining roots. The patient, upon being told that the operation was finished, had an attack of hysterics. Subsequently I extracted the roots of both central and left lateral incisors, right first molar in upper maxilla. The anterior teeth were so badly decayed that it was necessary to place a piece of wood in the canal of each. I used eighteen minims for the incisors, and ten minims for the molar. Before extracting I gave patient a teaspoonful of tincture of valerian in half a glass of water, adding a drop of oil of cinnamon. The extraction of the roots caused the patient no discomfort, and she was not troubled with hysteria.

Mrs. C. L. W., aged forty years, was sent by a physician to have roots removed, as they were badly decayed, very offensive, and were very annoying to the patient. The physician strongly advised against giving any anæsthetic, unless I could use a local anæsthetic not containing any cocain, as the patient was especially susceptible to its influence. The patient was extremely nervous, having a pulse of ninety-five from the dread of having the teeth extracted. The physician gave a minute dose of aconite, and after fifteen minutes the patient was apparently calm enough to have the tooth extracted. I injected twenty minims of a five per cent. solution. The patient complained of severe pain during the extraction, but also felt pain whenever I attempted to work in the mouth, when I touched the gum, also when I touched a sound tooth with an explorer.

In one case (name of patient not recorded) I removed four roots—the cuspid and first molar, left side, and first and second bicuspid on the left side. I used thirty minims of a five per cent. solution; the patient became nervous and did not feel able to have the forceps used, so I used the elevator, and the patient felt no discomfort. In other cases of extraction of single teeth, five were removed without pain, two with slight pain. I used eight minims of a five per cent. solution in each case.

Upon injecting a solution of nirvanin the gum is slightly blanched. After removing the needle, in about five seconds a slight escape of blood occurs. When the tooth is extracted a rather severe flow of blood occurs for a minute or two; after that time it becomes normal. A slight swelling of the gums, accompanied by pain, has occurred in every case in which more than one tooth was extracted; this may be owing to injury to tissue, or to the large quantity of nirvanin injected; but as both symptoms are slight and disappear in from three hours (shortest time) to twenty-seven hours (the longest), and as they are at no time sufficiently severe to interfere with the patient's sleeping, the gums healing very nicely, exhibiting no signs of sloughing, this is not a very serious objection to the employment of nirvanin as a local anæsthetic.



ABSTRACTS AND SELECTIONS.

A DISCUSSION ON ANÆSTHETICS.*

Selection of the Anæsthetic in Surgery.—Dr. John A. Wyeth opened the discussion by a consideration of the selection of the anæsthetic, considering, however, only the use of chloroform and ether unmixed. He said that during the first few years of his practice he had employed ether almost exclusively, and during this time had not failed to note the great irritation sometimes caused by this anæsthetic agent, and the great difficulty of inducing complete narcosis in alcoholic subjects without producing asphyxia. He had, therefore, been led gradually to make more and more frequent use of chloroform. At present, in about seventy-five per cent. of his operations he employed chloroform, either wholly or in some stage of the narcosis. In using chloroform he invariably injected beneath the skin one-fourth of a grain of morphine and one-one hundred and fiftieth of a grain of atropine about fifteen minutes before commencing the anæsthesia. These agents stimulated the heart, and allayed to a considerable extent the anxiety of the patient. He believed chloroform was dangerous chiefly to the heart, and that it was during the early stage of its administration that this danger was imminent. The depression of the heart, when observed at all, occurred almost invariably prior to the induction of complete narcosis.

Administration of Chloroform.—Chloroform should be administered with very great care, and only by an expert. In giving chloroform, he preferred to use the ordinary Esmarch's screen, keeping his finger on the pulse and watching the pupil for any sudden dilatation. If the patient gradually gave way to the anæsthetic and the pulse showed no interruption in its rhythm, he felt satisfied that the chloroform was having no unfavorable effect. The pulse might be rapid—120 or more a minute—or it might be as slow as 50 or 60 beats per minute, but these variations were not suggestive of serious danger so long as the heart beat regularly and rhythmically. If, however, a beat was lost here and there, or if two successive beats fell off in ful-

*At a stated meeting of the New York County Medical Society, February 19th, 1900.

ness, and then rose again in volume, it was always to him a signal which was to be respected, and he promptly withdrew the chloroform for a moment to note the effect. Should sudden pallor of the face occur, especially about the lips, on resuming the chloroform, he stopped the anæsthetic, and lowered the patient's head, preferably placing him in the Trendelenburg position. If the heart still showed resentment to chloroform, ether was at once substituted. If there had been no alarming symptoms from the first use of chloroform, he returned to it after having administered the ether for a short time. Another alarming symptom of the too profound effect of chloroform was the sudden and wide dilatation of the pupil. When this occurred, he always desisted from the use of chloroform anæsthesia. In his opinion, it was not proper to endeavor to bring the patient rapidly under the influence of chloroform. The free admixture of air was essential to safety. The average time for complete narcosis with chloroform was from fifteen to twenty minutes.

Ether Narcosis.—When ether was employed, he always used it with the Ormsby inhaler, or some form of inhaler which did not allow of the passage of the atmosphere directly over the inhaler and into the apparatus. The Allis instrument, or any similar form of open inhaler, seemed to him extremely objectionable because the passage of the atmosphere over the inhaler lowered the temperature within the inhaler and carried a chilled vapor into the respiratory passages, often exciting inflammation in this way. The introduction of a warm, moist anæsthetic vapor facilitated and modified the anæsthesia satisfactorily. In a series of administrations at operations in the Mt. Sinai Hospital he had proved that with the Ormsby inhaler the patient could be anæsthetized with ether and maintained under narcosis, and would come out of the anæsthetic more rapidly and with less irritation of the kidneys or other organs than by any other method of administration. It was well known that the elimination of the ether vapor by the kidneys was the cause of very considerable irritation of these organs. Of course, the greater the volume of ether in the blood, the greater was the volume that must be eliminated by the kidneys. Just here was observed one of the advantages of the closed inhaler—*i. e.*, the diminution in the quantity of the anæsthetic necessary for a given period of narcosis.

Ether and Chloroform Contrasted.—In the hands of a tyro

ether was safer than chloroform, and this without regard to the condition of the patient, but in the hands of an experienced anæsthetist, and one who had studied his case carefully and had satisfied himself that the use of chloroform was justified, this agent was practically without danger. He preferred chloroform in all cases in which there were pathological changes in the kidneys, and in which heart lesions were absent. When the lungs were seriously involved, as by tuberculosis, gummatous tumors, or inflammatory changes, or when there was a moderate pleuritic effusion, chloroform was preferable. When, however, in any way the heart had become crippled, ether was the safer anæsthetic. For operations in the abdominal cavity, chloroform was preferable for the reason that vomiting was less likely to occur during and after the operation. He was especially afraid of chloroform in patients who had had repeated attacks of rheumatism, and in whom the action of the heart was weakened by serious valvular lesion, atheroma, or fatty metamorphosis. In alcoholic subjects chloroform was preferable because of the difficulties met with in securing profound narcosis from ether.

Chloroform Unsafe for Children.—In children, ether was, in general, the safer anæsthetic. He had been taught that chloroform was the better anæsthetic in this class of cases, but he had learned that in children under twelve years of age chloroform was not so safe as ether. He had seen death occur in a child of ten years, without a single danger signal, and when not more than one drachm of chloroform had been administered by an expert. Chloroform was especially dangerous in children who were poorly nourished or weakened by any dyscrasia. Particular care was necessary when the child struggled and made deep and rapid inspirations. Over the age of twelve years, in healthy subjects, he believed chloroform to be as safe as ether.

The Amount of the Anæsthetic.—Dr. Thomas L. Bennett took up this topic. He stated that in his opinion many of the symptoms of prostration noticed after operation, and attributed to hemorrhage or shock, were really due to overstimulation from the use of an excessive amount of the anæsthetic. Many factors entered into the production of nausea and vomiting after operation, yet he was sure that there was a direct relation between these symptoms and the quantity of the anæsthetic employed. Asphyxia might result from an overdose of the anæsthetic agent, or from foreign bodies in the air passages. Syncope was in-

variably due to an overdose. Mucus, saliva, vomited matter, or blood might flow into the pharynx, and be carried into the trachea. Here it acted as an obstruction to respiration, and, as a result, the inspiratory efforts were greater, and these substances were drawn deeper and deeper into the lungs. Acute pulmonary oedema, in his experience, had been a rare complication of anæsthesia. The influence of anæsthetics upon the kidneys had received much attention, and all observers agreed that the chief factor was the quantity of the anæsthetic employed. The necessary amount of the given anæsthetic would depend upon: (1) The requirements of the individual patient; (2) the requirements of the particular operation; (3) the method of administration; (4) the administrator. Large, strong, energetic, wiry, neurotic, and intemperate patients, as a rule, required more than the average amount of the anæsthetic, while small, weak, lethargic, phlegmatic, and temperate people required less than the average amount. Many children about the age of puberty required an unusually large quantity of the anæsthetic. The amount would vary according to the nature, severity, location, and duration of the operation. Operations on the rectum, perineum, bladder, the eye and ear, and abdominal operations requiring severe and deep manipulations, all required a very deep narcosis. As to the method, he would say that when he had experienced great difficulty in securing ether narcosis by the open method he had succeeded quite rapidly when he resorted to the closed inhaler. There were two ways in which ether might be administered with a given inhaler, viz., (1) using a small quantity at short intervals, and (2) using a larger quantity at longer intervals. His personal preference was for the first method, just as he favored the drop-by-drop method of administering chloroform. On an average, about four ounces of ether would be required for the first hour, if the closed method was used, and about two ounces for the next hour.

Nitrous Oxid and its Modifications for Prolonged Surgical Operations.—Dr. S. Ormond Goldan read this paper. He said that in the use of nitrous-oxid gas for prolonged operations, the following precautions should be observed: (1) A sufficient quantity of gas should be at hand; (2) a hot cloth should be wrapped around the valve if the apparatus became covered with frost; (3) the patient's face should be turned on the side. Operations of delicate dissection, or where venous engorgement was undesir-

able, contraindicated the use of nitrous-oxid gas. The use of this gas was not contraindicated in abdominal operations, but it had been found necessary to flex the legs and thighs well in order to secure the proper relaxation. This was a point which had served him well, though he did not recollect having seen it mentioned in the books. It was undesirable to carry the anæsthesia to the production of clonic spasm. The time required for the induction of anæsthesia by nitrous oxid varied from thirty seconds to two minutes. About four gallons of gas were required in the average case to produce anæsthesia. Nitrous-oxid gas was an asphyxiating agent, although it also had anæsthetic properties, as was proved by its use with oxygen. When administered in conjunction with carbonic dioxid, the patients often complained afterward of headache. To obviate this the inhaler should be opened occasionally, and then filled with fresh gas. For the administration of nitrous oxid and oxygen, Dr. Hewitt's apparatus was generally employed. The effort was to give each patient as much oxygen as he or she would tolerate. The percentage of oxygen must be varied from time to time throughout the narcosis, depending upon the effect. The mask was kept constantly supplied, and the inhalation was continued uninterruptedly. This mode of anæsthetization required the greatest skill. As much oxygen as possible should be administered without interfering with the anæsthesia. Consciousness was almost immediately regained after nitrous-oxid anæsthesia. Sometimes there was intense headache for hours after its administration. Nausea and vomiting were also occasionally persistent for some hours. Hysterical attacks occurred at times after this anæsthetic. Anæsthetization with nitrous-oxid gas and oxygen was the most expensive of all the methods. In one operation lasting two hours, in which these gases had been administered in minimum quantity, the cost of the anæsthetic agents alone amounted to seven dollars.

Experience with Ethyl Chlorid in General Anæsthesia.—Dr. James P. Tuttle read this paper, which was based on some experiments that he had made during the past three months with kelené, or pure ethyl chlorid, as an adjunct to anæsthesia with ether. The first experiment had been made on November 15th, 1899. The patient was a strong man aged forty-five years, having a fatty tumor on the border of the scapula. Insensibility to pain had been induced in four minutes, but the muscles had not re-

laxed promptly, and supposing that this could not be readily induced by kelene, the anæsthetist had been directed to change to ether. Complete narcosis had been induced so rapidly then that he had been at first alarmed. His next experiment had been on a case of hemorrhoids. For three minutes and a half kelene had been administered, and then, the cornea having become insensitive, ether had been given with the Ormsby inhaler, and complete anæsthesia had been induced in two minutes more. Since then he had adopted the following method: The kelene is sprayed upon the under surface of an Esmarch inhaler, and the spraying is repeated from time to time. As soon as the cornea became insensitive, ether was given by the Ormsby inhaler. In forty cases of which he had notes, the time required to induce anæsthesia had never exceeded seven minutes. As a rule, consciousness seemed to be retained up to the time of changing to ether. There was sometimes momentary spasm of the glottis at the time of beginning the use of the ether. The shortest time required for inducing anæsthesia had been three minutes and a half, and the longest seven minutes. Occasionally there had been a little struggling, but ordinarily the patient was conscious, and a reassuring word or two, explaining to him that there might be a momentary spasm or choking, was sufficient to prevent any struggling. He had asked a number of patients whether they had any recollection of the application of the ether cone, and in each instance had received a negative reply. In four cases the use of the ethyl chlorid had proved unsatisfactory. In one of these it had been found exceedingly difficult to anæsthetize the patient with ether. None of these four persons was at all the worse for the kelene, and he felt sure that in none of these instances had the induction of ether narcosis been rendered more tedious or difficult by the preliminary use of the kelene. The average quantity of kelene employed had been between 10 and 20 c.c. He considered it important that the kelene should be kept in a closed graduated tube. He had seen no deleterious effects from this use of ethyl chlorid.

Closed Inhalers Dangerous.—Dr. Hobart A. Hare, of Philadelphia, opened the general discussion. He stated that the physicians and surgeons in Philadelphia believed the best form of inhaler for both ether and chloroform to be the simplest one imaginable—the ordinary towel cone with a piece of absorbent cotton in the top of it, or an Allis inhaler for ether, and the

folded towel for chloroform. Personally, he was very much opposed to the various forms of cumbersome apparatus that had been shown this evening. He was opposed to them because of their cumbersomeness, and because he believed much the same objections applied to tubes and bags in connection with inhalers that applied to tubes in infants' nursing-bottles. He believed a good many pulmonary accidents had occurred from the use of these bags and tubes in connection with inhalers. We were told, of course, that these things could be boiled and sterilized, but how often in private practice was this neglected when the physician or surgeon returned home tired out after a long and trying operation? He had seen a gynæcologist in Philadelphia use one of these bag inhalers, and had always been impressed with the idea that his patients were being anæsthetized primarily by the anæsthetic, and secondarily, by carbon dioxid, and thirdly, perhaps, anæsthetized or benumbed by taking into the system the effete material which it was known the breath was continually giving off. Physiological experiment had proved most positively that, after all, it was not the carbonic acid gas which was given off from the lungs which acted so deleteriously in crowded rooms—as in the historical Black Hole of Calcutta—as the effete material expired. For these reasons he was of the opinion that an anæsthetic agent should be selected and used, by itself without having its effect obscured and rendered more complex by the use of these closed inhalers.

Comparative Safety of Chloroform and Ether in Children.—He had been particularly interested in the title of Dr. Wyeth's paper because he believed it was a common fault to resort to the routine use of both ether and chloroform without carefully selecting the anæsthetic to suit the needs of the individual case. He had been greatly surprised to hear the statement by Dr. Wyeth that the use of chloroform in children was more dangerous than in adults, for he felt sure that medical literature would not support this assertion—indeed, it seemed reasonable to suppose that what might be called "the fresh heart" of the child could stand chloroform better than the heart of an older person. Again, ether seemed to him particularly objectionable in children because the delicate mucous membrane in the respiratory passages of the child was so much more apt to become inflamed as a result of the irritation set up by the ether.

Effect of Chloroform on the Heart.—He would also take issue

with Dr. Wyeth in regard to the effect of chloroform on the heart. He did not believe that chloroform exercised primarily any very distinct depressing influence upon the left heart of a healthy individual. The explanation of the sudden circulatory failure which took place frequently during chloroform anæsthesia he believed was to be found, not in the heart, but in the vaso-motor system. It was perfectly possible for a man to bleed to death into his own arteries. These deaths from chloroform, then, he would ascribe to vaso-motor paralysis. A very large proportion of deaths from chloroform had occurred in the hands of dentists who had administered the drug to patients semi-recumbent or sitting up in a chair. In confirmation of this view, the speaker referred to a case seen by him in a private hospital of a colleague. The patient had suddenly become utterly pulseless, and the apex beat of the heart could not be felt over the precordium; indeed, a hasty auscultation had hardly revealed the heart sounds. Dr. Hare said that he had suggested in this emergency that the operator grasp the abdominal aorta. This had been done immediately, and at once the heart had begun to beat more naturally. This case seemed to him convincing evidence of the very important part played by the vaso-motor system. When vaso-motor failure did not occur, and still chloroform produced death, it did so, in his opinion, by paralyzing the sister center of the vaso-motor center, *i. e.*, the respiratory center. Dr. Hare said that he had studied this matter very carefully on animals for the Hyderabad Commission, and had become thoroughly convinced that the primary effect of chloroform on the circulatory apparatus was to lower the blood pressure.

Atropin before Anæsthesia.—Again, surgeons innumerable had found that the use of atropin just prior to the administration of chloroform gave a more satisfactory anæsthesia. This was because atropin was one of the best vaso-motor stimulants. The atropin more than the morphine was responsible for Dr. Wyeth's good results when these two drugs had been given prior to anæsthesia. The foregoing facts should impress another lesson, *viz.*, that before anæsthesia is induced, or an operation performed, the limbs should be bandaged in a feeble patient. In urgent cases an abdominal compress should be applied with the same object in view.

Shock Following Anæsthetization.—It had often seemed to him that the amount of the anæsthetic agent employed depended

more upon the anæsthetizer than upon the anæsthetic agent or upon the patient.

Some anæsthetists seemed to know almost instinctively when to add more of the anæsthetic, and when to stay their hand. The profession at large seemed to pay too little attention to the question of the shock produced upon the patient by the administration of an anæsthetic. This was a matter which could not fail to impress itself upon physicians rather than upon surgeons. He had repeatedly seen persons subjected to operations and recover apparently satisfactorily from them, and yet for many months afterward they had carried with them a distinct stigma resulting from the operation or the anæsthetic. Many women after such an experience do well for a short time, and then become vaguely nervous and out of health, and ultimately have to take the "rest cure."

Position of the Head and the Use of Tongue Forceps.—When one wished to be sure that air passed freely into the lungs, the head should be thrown forward in the position which it occupies in a trained runner. If the anæsthetic was properly given, the head maintained in this position, and the jaw properly manipulated, there would be seldom any occasion for the anæsthetizer to make use of the tongue forceps which so commonly decks the coat of the young hospital interne whose duty it is to administer the anæsthetic.

Avoidance of Nausea.—He believed in many cases the preliminary use of morphine increased the tendency to nausea and vomiting. He had discovered that if it was desired to avoid this nausea, whether due to the anæsthetic or to the morphine itself, it could be ordinarily accomplished by combining nitro-glycerin with it.

Influence of Athletics and Fright.—He was of the opinion that nitrous-oxid gas should be used very carefully in any case in which there was atheroma, because this anæsthetic greatly increased the blood pressure. In the presence of valvular disease of the heart he would employ ether in preference to chloroform, and also in cases of fatty degeneration of this organ. On general principles, ether seemed to be a safer anæsthetic in young athletes than chloroform, because statistics showed very clearly that these persons were specially prone to accidents with chloroform. When engaged in laboratory work it had been recognized as a fact that strong, well-built dogs were very prone to die under

chloroform, and that the better bred the dog the more susceptible was he to the lethal influence of this anæsthetic. Dr. Hare mentioned this amusing fact, he said, to emphasize the influence of fright, the highly bred dog exhibiting great fright before the anæsthetic had been administered.

The Effects of Different Anæsthetics Compared.—Dr. R. Coleman Kemp continued the discussion, speaking of the effect of anæsthesia on the kidneys. He stated that other conditions being the same, the secretion of the kidney varied with the quantity of blood flowing through the kidney, and by conditions affecting the general arterial pressure. Ether and nitrous oxid could be taken as the types of the vaso-constrictor anæsthetics; nevertheless, with ether the constriction of the renal vessels was entirely out of proportion to the constriction of the other vessels in the body—in other words, ether seemed to exert a selective action on the kidney. Moreover, in experiments on animals with these anæsthetics, the percentage of albumin was large with ether as compared with chloroform, and persisted for a long time. With the A. C. E. mixture the chloroform depression was noted and the typical effect of ether on the kidneys. The main objection to the Schleich mixtures, when given with the inclosed inhaler, was the occurrence of the chloroform heart and the ether kidney. Anæsthon contains chlorid of ethyl, ether, and chloroform. The chlorid of ethyl exerts a certain depressant effect upon the heart and upon the circulation. Nitrous-oxid gas and oxygen should be considered the safest anæsthetic, provided the patient was not atheromatous, and when kidney lesions were suspected or were known to exist. Chloroform, as regards the kidneys, occupied a close second position to nitrous-oxid gas. The mixtures possessed no advantages, since they combined the bad effects on the heart and on the kidneys, and one was ignorant of the actual amount of the various constituents taken into the system.

Dr. Ferdinand Hasbrouck spoke from his personal experience as a dentist who had been administering nitrous-oxid gas constantly for over thirty years. He had administered the gas to nearly ninety-five thousand people, and had not yet lost a patient. He thought he was familiar with the case referred to by Dr. Hare, and believed it was one case out of one hundred and twenty thousand. (To this Dr. Hare assented.) Regarding the apparatus that had been exhibited, he said that it was very defective.

The calibre of the tube was much too small to prevent the unpleasant suffocative sensation complained of by so many persons. He could administer nitrous-oxid gas to adults or children almost imperceptibly. As a rule, the sensations were pleasurable rather than disagreeable. He ascribed his good results to the use of a very large tube, and the old-fashioned Johnson inhaler. He had administered the gas for operations of one or two hours' duration—probably five hundred times for operations lasting one or more hours—and had never experienced any very great difficulty with it. He called attention to the fact that the valve in the iron cylinder containing nitrous-oxid gas might be broken without the knowledge of the anæsthetist, and thus leave him in a very unpleasant position.

A Large Mortality from Ether Anæsthesia.—Dr. R. H. M. Dawbarn called attention to the change of opinion which had taken place in New York City in recent years in favor of the more general use of chloroform as an anæsthetic. He believed that almost invariably when a man died under chloroform it was due to the ignorance of the anæsthetist. He made the statement that Dr. R. Coleman Kemp and Dr. William H. Thomson had records proving most conclusively that in the hospitals of this city about one patient in nineteen dies from ether anæsthesia. The speaker said that in the last ten years he had not had a single death from suppression of urine or from ether pneumonia after ether anæsthesia, and he attributed this largely to the use of a simple modification of the Clover inhaler. The breathing over and over again of the same ether in such an inhaler prevented chilling and undue irritation of the respiratory passages. Undoubtedly it produced a carbonic acid anæsthesia, but so eminent an authority as Dr. H. C. Wood, of Philadelphia, had expressed his conviction that such anæsthesia was not injurious. The modified Clover inhaler to which he had referred could be cleansed in a moment—certainly in much less time than was required for cleaning the Allis inhaler. For the last ten years he had almost always given prior to anæsthesia gr. $\frac{1}{150}$ of atropin and gr. $\frac{1}{6}$ of morphine, with a little whiskey. This medication reduced the quantity of the anæsthetic required, and certainly reduced, and sometimes annihilated, the element of fear.

Ether Gelatinizes Acid Urine.—Dr. J. A. Bodine referred to the observation, made some years ago by Dr. Andrew H. Smith, of this city, to the effect that when acid urine was mixed with

ether in the laboratory it would gelatinize after a time, but this did not occur when the urine was alkaline. This suggested the possibility, which seemed worthy of further study, that if the precaution was taken to have the urine acid before giving ether, the effect on the kidney might be less dangerous.

Fright an Important and Dangerous Factor.—The speaker laid great stress on the element of fright and apprehension concerning the administration of the anæsthetic, and referred to a case occurring in the practice of a surgeon in New York City, in which death had occurred just before the administration of the anæsthetic had been begun. In this person the autopsy revealed all the vital organs in a normal state. Because of this fright before anæsthesia, he favored the administration of a moderate dose of morphine. The reason that chloroform was relatively safer in obstetric practice was that the woman looked upon parturition as a natural process, and welcomed the anæsthetic as a relief from the pain. Future research regarding anæsthesia should be directed toward studying the effect of the anæsthetic upon the blood, as the field of pure clinical study of anæsthetics had been nearly exhausted.

A Simple Home-Made Ether Inhaler.—Dr. A. Ernest Gallant spoke of the important and responsible position of the skilled anæsthetist, and contrasted the usual fee which he received with that demanded and received by the operating surgeon. He advocated allowing the patient to hold the ether cone; the additional time required would be more than compensated for by the diminution of fright. His method of using the Allis inhaler was to remove the bandage from the frame, to cover the lower portion of the frame with a layer of absorbent cotton retained by slipping a rubber elastic band over the frame, and then loosely to fill the frame with gauze. The ether cone used and recommended by him could be readily made by any one at home, the frame being made from a piece of ordinary stove-pipe, tin, or galvanized iron leader pipe, three inches in diameter, and three and a half inches long, or even from a heavy piece of cardboard. If the latter was used, it should be wet on one side to make it flexible, and then bent to an oval shape. The gauze was to be adjusted over the end, and a newspaper, folded eight inches wide and wrapped in a towel, was wound tightly around the frame, both ends being left open. The loose gauze having been put into the frame, the inhaler is ready for use.

Effect of Chloroform After Nitrous Oxid.—Dr. J. W. Draper Maury said that he understood that in Germany the custom was not to give chloroform by the drop method, as had been stated, but by saturating the mask with the chloroform. If nitrous oxid was followed by chloroform it almost always induced vomiting, and not infrequently the effect of chloroform on the heart after the use of gas was deleterious.

Schleich's Mixtures Commended.—Dr. M. L. Maduro spoke favorably of the Schleich mixtures, and in this connection cited the experimental work of Dr. S. J. Meltzer. This investigator claimed that the petroleum ether was the dangerous constituent, though Schleich denied this. The work of Drs. Kemp and Thomson was interesting, but was more than offset by the results of experience, as abundantly proved by the statements that had been made in this discussion.

Dr. Parker Syms spoke with great earnestness in favor of the growing tendency to turn over the administration of anæsthetics to those specially trained for this work.

Dr. Emil Mayer brought up the question as to when consciousness ceased, and the important bearing which it had upon the conduct and conversation of those present in the anæsthetizing room.

Dr. Hare emphasized the fact that the dose of the anæsthetic which the patient got was not that quantity which was put upon the towel or mask, or which was breathed, but the amount which was absorbed. For this reason, if the patient breathed in one ounce of ether in a closed inhaler, and breathed it over again ten times, there was very little difference in the effect upon that patient, as regarded the quantity of the anæsthetic, from giving a good many ounces of ether on an open inhaler. In his opinion, the reason that the parturient woman could take chloroform so much more safely than others was because the pain stimulated the abdominal vaso-motor centers. In conclusion, he advised that a careful selection of the anæsthetic should be made for each case.

Dr. Goldan, in closing, said that he always made it a practice to sterilize thoroughly his bag inhaler each time. Regarding the physiological experiments of Drs. Kemp and Thomson, he would say that their results were decidedly at variance with clinical experience, for certainly it was rare to find bloody urine or suppression of the renal secretion after etherization. Chloroform

should never be given immediately after nitrous-oxid gas; if it must be given, ether should be used as an intermediate agent
New York Med. Journal.

GOLD AND GOLDBEATING.

By G. H. C. Rowland.

Pharmacists are interested in the familiar goldbeater's skin, and occasionally, even yet, the once common direction to roll pills in gold leaf is to be met with. One day I met a citizen of Edinburgh who, I found, was engaged in the "art and craft" of goldbeating. Thinking some details of the process would interest pharmacists, I arranged to visit this gentleman's works, and met him for that purpose one night in one of the most historic spots of the old town of Edinburgh, and was conducted to the old Wynd, where this ancient art is still carried on.

Goldbeating is of great antiquity, being referred to by Homer (1,200 B. C.) and Pliny (23-79 A. D.). The latter states that 1 ounce of gold was beaten to 750 leaves 3 inches square, about three times the thickness of the present average. Gold was largely used by Solomon, when, doubtless, a great deal of gold leaf was used for covering purposes. The art appears to have originated among Oriental tribes, and in India is still practiced under conditions involving many mysteries and great difficulties. On the coffins of the Theban mummies specimens of original leaf gilding occur where the leaves are so thin as to resemble modern gilding. The Incas of Peru appear only to have been able to reduce gold to plates which were nailed for ornamentation on the walls of their temples.

Goldbeating was confined to London in this country till well within the present century, and even yet is principally centered in that city. It was introduced into Scotland about 1860. At one time there were four goldbeaters in Edinburgh, but only two remain. The industry is declining owing to foreign competition. Gold for the purpose of beating is principally obtained from the refiners in Sheffield, Birmingham, or London, and is granular in appearance. Fine gold is commonly supposed to be incapable of being reduced to thin leaves. This, however, is not

so. Its use for ordinary purposes is undesirable because of the greater cost and the fact that leaves of pure gold tend to adhere to one another. It is preferred for outside work because it does not tarnish. The Albert Memorial, in London, and some other statues are covered with pure gold. The fine gold is alloyed before using according to the color required. There are ten degrees of color—namely, red, pale red, extra deep, deep, citron, yellow, pale yellow, lemon, green or pale, and white. The proportions of alloy for the shades in common use are: For red, 18 grains copper to each ounce; pale gold, 5 dwt. of silver; deep or medium, 12 grains copper and 12 grains silver. Pure gold is seldom required, and the same applies to double gold—that is, double the usual thickness. The deep or medium is that mostly used. Foreign leaf is thinner than British, and contains more alloys. The chief use of gold leaf is in the bookbinding and allied trades. Picture and mirror frame makers and gilders and decorators also use large quantities. One thousand books of gold leaf were used in decorating the interior of the Edinburgh University Library. The cross on the summit of St. George's Church, Charlotte Square, is covered with double gold. A proposal was made to cover the whole dome, but the estimated cost, £1,700, caused the dropping of the scheme.

The first stage in the process of goldbeating is to melt the gold in an earthenware crucible with the requisite amount of alloy, at a temperature higher than the fusing point, so as to increase its malleability. This is then cast into an ingot 3 inches long and $1\frac{1}{4}$ inches broad. When cool, the ingot is rolled between powerful steel rollers, which are gradually tightened. After it has passed through half a dozen times it requires to be annealed. It is then passed through the rollers twice and again annealed, and this is repeated six times. The ingot of 3 inches has, at the end of this operation, become a ribbon 20 yards long, and about the thickness of ordinary note paper. The width remains the same, as extension takes place only in one direction. This ribbon is divided into two 10-yard lengths, each weighing about 3 ounces, and constituting a "piece" of work for one man.

The beater marks off the "piece," and with a pair of shears divides it into 180 smaller pieces. Each of these is placed separately into a tool called a "cutch," with a piece of skin or membrane about 3 inches square between each, and the whole is enclosed in two membranous bands. This is placed on a block

and beaten for half an hour with a wooden hammer weighing about 17 pounds, the labor being considerably reduced by the elasticity of the skin causing the hammer to rebound. At the end of this time each piece of gold foil, originally about 1 inch square, will have extended to the edges of the membranes, and is taken out leaf by leaf, and each quartered so as to give 720 pieces.

Each of these 720 is placed in a tool called a "shoder," which is similar to the "cutch," but the skins are considerably finer and 4 inches square. This is hammered for about two hours, until the gold again reaches the edge of the skins. The leaves are taken out and again quartered, giving 2,880 pieces.

The next tool is called a "mould," and is made up of the finest skins. A full "mould" contains 950 skins 5 inches square, so that three such tools are required for the 2,880 leaves resulting from the previous operations.

The skins or membranes which comprise the "mould" are about double the thickness of the goldbeater's skin as met with in pharmacies. Like the previous tools, they are prepared in France from the outer coat of the cœcum or blind gut of the ox, the gut of 380 oxen being required to furnish sufficient skins for one mould. The gut is first stripped off in lengths of 25 to 30 inches, freed from fat by dipping in caustic potash solution and scraping with a dull knife, and stretched on a frame. Two membranes are glued together, treated with a solution of aromatic substances or camphor in isinglass, and coated with yolk of egg. The price of a "mould" is sometimes as high as £10 10s. It will stand years of beating before being relegated to the pharmacist to be cut up and sold as goldbeater's skin. Many substitutes have been tried for this gut, but none have been found successful.

The beating of the gold in the "mould" occupies five hours, and this is the most difficult stage in the process, the thinness of the gold leaf depending on the fineness of the skins and the judgment of the workman. At the end of two hours, when the gold is about $\frac{1}{150000}$ part of an inch in thickness, it permits the passage of a ray of light for the first time, the transmitted light being green, or, if much silver is present, violet. Some leaves when heated transmit ruby-red light. For some time at the commencement of the beating the blows are necessarily struck in the center of the skins. This produces heat, which tends to

curl up the skins, as a hot iron does in plaster spreading. This must be carefully guarded against, and occasionally the beating must be suspended for a time. As the leaves extend in size the beating is more generally distributed, and this lessens the danger of heating. At the end of five hours the leaves are taken out, and each is cut on a cushion with an instrument called a wagon, the cutting edges of which are simply split rattan canes. The usual size is about $3\frac{1}{4}$ inches square. The leaves are now ready for putting up in the familiar tissue paper books, twenty-five leaves being the usual number to each book. The leaves of the books are previously dusted with rouge to prevent the gold sticking to the pages. Transfer gold, which is used for outdoor work, is simply ordinary gold leaf pressed on to sheets of tissue paper so as to adhere, but readily coming away when pressed on to a varnished surface, thus enabling outdoor work to be carried on even in windy weather.

Between each time of using each membrane of the "mould" requires to be separately cleaned, each side being brushed with talc by means of a hare's foot. It is afterwards put in a hot press to remove damp. The degree of dryness is very important. If the membranes are not sufficiently dry the leaves of gold do not extend evenly, and overdryness diminishes the brilliancy of the gold.

The limit to which gold has been beaten in the manner described is 1 grain to 75 square inches. Taking the cubic inch of gold as 4,900 grains, this gold leaf is $\frac{1}{387650}$ part of an inch in thickness, or about 1,200 times thinner than ordinary writing paper. One grain of silver has been beaten to 98 square inches, but, owing to difference in specific gravity, the leaf was thicker than the gold leaf. This experiment does not determine the malleability of either metal, as the means of testing it failed before there was any appearance of the limit of malleability of the metals being reached. In practice gold is not nearly reduced to such a degree of thinness as the above.

Many attempts have been made to beat gold by machinery, but without success. The practiced eye and the skilled hand seem indispensable.

Pharmaceutical Journal.

DENTISTRY IN JAPAN.

By Louis Ottofy, D.D.S., Yokohama.

My first interest in Japan was aroused in some matters I read regarding the country and its people in 1892, and I looked forward with many pleasant anticipations as to what that country would exhibit at the International Exposition at Chicago in 1893. It is needless to say that I studied the exhibits of Japan, governmental and private, with the greatest of interest. This was followed by an extensive reading of the history, customs, etc., of the country, and when the China-Japan war broke out, it was no surprise to me that the smaller and less populous country was victorious. I continued my observations, and in 1897 decided to come to Japan, under the partial impression that in that country the opportunities were probably ripe for the introduction of many of the modern improvements, and for the planting of the progress made in dentistry in the West. With this object in view, when in the spring of 1898 I made the announcement to my friends that I expected to leave for Japan, to practice dentistry and to engage in educational work, I received from a number of dental societies testimonials and credentials, which have placed me under everlasting obligation to the many whom I must forever number among my life-long friends. And to them it is but proper that I should give an account of my experience in Japan and of the prospects of dentistry in the future.

Just before sailing, in June, 1898, I wrote for *The Dental Review** an article, which the editor, with the best of intentions, I have no doubt, but unwisely, suppressed. Unfortunately I have no copy of it, but I am of the opinion that if this communication is published, the article referred to could appropriately precede it. It was written to show that my pre-Japanese investigation of the subject had been thorough and did not make upon me the impression, which so many held who were anxious to go to Japan, and who wrote to me to be sure and send for them when the "school is established," or to let them know "of any good opening," etc. My observation led me to know something of the Japanese character, and I surmise what I then said, and do not

* This paper in some unforeseen manner was lost during house-cleaning in the editor's *sanctum* about one year ago. As it was largely speculative and not strictly a professional paper its publication was deferred until too late, which we sincerely regret.—EDITOR *Dental Review*.

now remember, will not be much at variance with what I do now say at the end of a year and half of residence and unceasing study of the situation.

OPPORTUNITIES FOR FOREIGNERS.

The Japanese do not employ foreign dentists. The people are confident and satisfied that there are none superior to native dentists. On the other hand, foreigners do employ Japanese, on the ground that their services are much cheaper, and, in the opinion of some, equally as good. Inasmuch as there are less than 5,000 foreigners (always excluding Chinese [who are also foreigners] when speaking of foreigners) in all of Japan, the field of the foreign dentist will be found to be limited. It is just to add that there is always a floating population and a certain number of travelers who of necessity must seek dental services while in Japan, or for that matter anywhere else. The permanent foreign population resides principally in Tokio, Yokohama, Kobe and Nagasaki. Tokio is within fifty-five minutes' ride of Yokohama, has no foreign dentists, and some of its foreign population comes to Yokohama for dental services.

At the present time three dentists are located in Yokohama to cater to a population of less than 1,500. Of these three, one has been here over twelve years, is a good operator and is located in an old-established practice, and does a business that—well, would be unimportant in a good sized village in the States. The other hangs on by his eyelashes only, and your humble servant has not accumulated any great wealth, and never will, in Yokohama. In Kobe the situation might be much brighter were it not for the fact that in reality it is much darker. There are two men there; one being connected with one of the Yokohama men, who is wise in keeping the field covered so no one else will locate, while the other has not enough to do to make a living, and hence makes trips to Korea, to keep things moving. Since I came out, one has settled at Nagasaki, who, in desperation to live, has "cut the prices," and now has the knife close to the jugular vein. The funeral of his professional career in Japan may be looked for at any time. When one adds to this the fact that these operators are isolated, deprived of all touch with the profession, that the professional etiquette requires seclusion, solitude and somnolence, those who want so eagerly to locate in beautiful Japan should rather pity than envy these expatriated dental grave-

stones. Since I have been here I have had the pleasure of the call of several American dentists who were looking for locations, and while I have strenuously urged them to stay and keep us company, they all seem to move on, looking rather for dollars than a good climate, fine scenery, gorgeous temples or Japanese beauties. I can therefore briefly, through the columns of the *Review*, advise those whose longing eyes are turned toward the land of the rising sun, to seek the land of any other sun. The revised treaties between Japan and the foreign powers came into effect on July 17th, 1899, and the result was variously predicted, some claiming that a large influx of foreign residents and capital may be looked for, while others held that an efflux of the population would be the result. Neither has been correct. The probabilities now are that a slight influx of capital and a slight efflux of population will be the eventual result. In either case the prospects for foreigners will be less and less roseate.

THE NATIVE DENTIST.

It has been a source of great pleasure to me to have had the good fortune to make the acquaintance of many of the native dentists. I have found them universally respectful and courteous, many of them sincerely desirous of progress and advance. Indeed, I have been astonished at many of the accomplishments they possess, and had I not been compelled in some cases to converse with them through an interpreter, I could have learned even more of their methods and abilities. I am certain that for some of them I shall always feel and express the highest admiration. As a whole, I should liken the profession to the occupant of a hut which is but a short distance from the electric current and illuminating gas, but who, having discarded the illuminating power of the tallow, has accepted the coal oil lamp instead, when all the more powerful illuminants were within his grasp. By and by even these things will improve.

DENTAL EDUCATION.

I have made every reasonable effort toward the establishment of a dental department in the University, and for a brief period was under the impression that some good results may possibly follow. I have been constantly under the impression that some undercurrent existed, the source of which I could not fathom. It is needless and impossible in a paper of this kind to

go into the racial conditions in the far East. Suffice it to say at this point, that there is nothing whatsoever in common between the Japanese race and the white man, not more than there is between the North American Indian and the white man, and less than between the Negro and the white man. The motto of the future must and will be, "Japan for the Japanese," and there is no unjust sentiment in that motto. Japan will draw on all the world and on all the ages for its progress; beyond that the peoples and the countries outside of Japan are of no interest. Briefly, then, when I learned from an educated, upright, able, well-known gentlemen that the president of the Imperial University of Tokio, though a graduate of Cambridge, is fanatically anti-foreign, I dropped all further interest in the matter. What "anti-foreign" really means is beyond the comprehension of those who have not lived for some little time in Japan. Japan will eventually have her dental educational system, but without the aid of any foreigners. It has the right and chooses to gain what information it can, and pays the stipulated compensation for it to foreigners. One or two men will soon visit the United States to study dental education, bring the fruit to Japan, and the next generation will reap the benefit of that for which Americans and others have given their lives in the profession of dentistry.

HISTORY OF DENTISTRY.

It has been a source of gratification to me to gather the material for a "History of Dentistry in Japan." In this work I have been aided by a number of Japanese dentists, and I have read in such languages with which I am familiar, many available works bearing upon this subject, and in this matter I am now sufficiently under way to make satisfactory progress with the translation of such parts of authorities as are germane.

I regret that I cannot give a more favorable or glowing account of the dental situation in this Empire; but, in violating the Eastern custom of silence on topics which cannot be presented in a favorable light, I feel it obligatory on myself to state the facts without prejudice or favor, and only as I find them. This paper, in connection with the one read before the Chicago Dental Society in March, 1899, and published in *The Dental Review*, April, 1899, practically covers all that might interest a foreign reader. In closing, I may add that the American dental graduates in Japan have organized an "American Dental Society," and

that Japan also has been organized to be represented at the Dental Congress in Paris. Personally my residence here has led me to the study of the etiology of erosion, and I trust in time to conclude this part of my work in a manner which will fully justify the temporary sacrifices which I feel one must make in living in the East. For the student of almost any topic connected with dentistry Japan offers an immense field, but I do not as yet possess the liberty and freedom which such undertakings require.

DENTAL SURGEONS IN THE ARMY.

There is a bill before Congress which should have the support of every American who has or ever hopes, expects or dreads to have a relative in the army. It is entitled "A bill to provide for the appointment of dental surgeons for service in the United States Army." It was introduced early in December, and has reached that stage of advancement where popular pressure will easily affect its enactment.

Similar measures to this have been before Congress and have received the approval of the department and of men in the service. The bill authorizes the appointment of "dental surgeons to serve the officers and enlisted men of the regular and volunteer army in the proportion of one dental surgeon to every one thousand of said army."

The experience of our army in Cuba, Puerto Rico, and the Philippines emphasizes the necessity of providing every regiment with a capable dentist. In no other part of the anatomy is the deteriorating effect of a change of climate so marked as in the decay of the teeth. How much of this is due to the climate, the change of diet, and the different conditions of life, has not been determined. Neither can it be definitely said how far this dental caries is the cause of physical debility in our men in tropical climates and how far it is an effect. The decay is there, and it needs the care of dental surgeons.

Sound teeth in the army is a necessity of the service, just as much now as in the days when they were needed to bite off the end of the cartridge, which precipitated the mutiny in British India. In the eyes of the law a man is maimed when he loses a foretooth, because it renders him less able to defend himself or

attack an enemy in a fight. In the army both fore and jaw teeth are necessary to keep the soldier in efficient fighting trim.

During the civil war arrangements were made by the Confederates for dental surgeons in the military hospitals, and as far as possible with the regiments. No direct provision was made for them, but they were carried on the rolls as nurses, wardmasters and hospital stewards, receiving the pay of the last named. It is an interesting fact that an interdental splint invented by one of these dental surgeons was the means of saving scores of Southern wounded from disfigurement, if not death, from gunshot wounds in the jaw.

The bill before Congress is necessary to put our service in as effective shape in regard to dental surgery as was the temporary Confederate service more than a generation ago.

Chicago Times-Herald.

MOUNTAIN TOOTHACHE.

By Dr. Hafner, of Zurich.

In November, 1898, I was consulted by a young engineer, who in the course of conversation related the following: While engaged as engineer in the construction of the Jungfrau (mountain in the Swiss Alps) railway, and after having been at work at an altitude of 2,600 meters above sea level for about ten days, he suffered pain in three or four contiguous teeth. The pain was of a beating, pulsating nature and pretty severe, so that headache followed. Edematous swelling in cheek and jaws. During the second and third days the pain increased and extended over the whole side of the jaw. Mastication was impossible on the affected side of the mouth, and the teeth appeared to have elongated. The malady lasted about five days and then disappeared completely. During a stay of six weeks there was no recurrence of the trouble. In external symptoms the affection appeared similar to periostitis; but a peculiarity is, that the teeth to this day are quite healthy, without any fillings, and no dead pulp, nor is anything pathological (scar, etc.) to be noticed in the surrounding soft tissues. The communication is noteworthy, as not only one person was affected, but every one employed, the engineer as well as the Italian laborers. The appearance of the malady was not of an epidemic nature, but every new hand

received this "mountain baptism" (as the people called it) after having been in the locality eight or ten days. The location of the trouble was variable, with some it was on the right side, with others on the left, sometimes in the upper teeth and sometimes in the lower, but several contiguous teeth were always affected, as well as the whole nervous system. The pain generally ceased of its own accord on the fifth day, and a recurrence was never experienced, not even after working in the locality for several months. The Italians appear to be acquainted with it, as they brought the roots of a certain plant with them, which they chewed and placed on the affected part. It is called by some "mountain toothache." The provisions of the men consisted of conserved meats, in which probably saltpetre was used, though it did not taste salty, with macaroni, bread, condensed milk and canned vegetables. The water was clear and fresh, and there was plenty of it. The temperature of the region was 12-16 C. There was no physician at the station. Whether the cause of the malady can be attributed to the climate, the low atmospheric pressure, the water, the sameness of provisions, or infection, cannot be determined from the communication. That scurvy should be the cause, is out of the question, as the trouble disappeared without a change of diet or habits of life.

Dominion Dental Journal.

CAOUTCHOUC.

India-rubber is the product of *Hevea brasiliensis*, Muell. Arg. (N. O. Euphorbiaceæ) and other species indigenous to Brazil. Inferior varieties of it are produced by species of *Castilloa* and other plants growing in tropical climates. It occurs in the milky juice or latex of the plants, associated with fat, albumin, resin, etc., and is obtained by incision. By coagulation of the albumin contained in the exuded juice, the suspended particles of caoutchouc are collected in a curdy mass, which becomes tough and elastic when dry. Para rubber, as it is termed in commerce, is used in the preparation of Liquor Caoutchouc and, indirectly, of Charta Sinapis.

Characters.—India-rubber (Para) occurs in elastic masses, of varying form and size, the brownish-black color externally shading off into a paler tint internally. Each mass consists of

a number of thin layers, which appear to be separated by dark lines, the superposition being due to the coagulation of successive coats of the alkaline latex by exposure to acid vapors contained in the smoke from burning wood. Some rubber is milk-white internally, and little, if any, can properly be described as "mottled." India-rubber is insoluble in water, ethylic alcohol, alkaline solutions, or in dilute acids, but more or less soluble in chloroform, oil of turpentine, carbon bisulphid, benzol, and in petroleum spirit. It has a characteristic, somewhat empyreumatic, odor, is nearly tasteless, and melts at about 125 degrees C., remaining soft and adhesive after cooling.

Notes.—The distinctive characters of India-rubber are its elasticity and behavior to solvents. Thus, in chloroform, benzol, etc., it swells and becomes soft and gelatinous, a portion of it appearing to dissolve, whilst the rest remains in a more or less disintegrated condition. It seems to consist chiefly of two hydrocarbons, its more soluble portion being soft and ductile, while the less soluble part is tenacious and elastic. When subjected to dry distillation, oil of caoutchouc—a mixture of various hydrocarbons—is obtained. Alcohol removes from Para rubber about 1.5 per cent. of resin; other impurities naturally present are fat, coloring matters, and mineral substances. Pure caoutchouc is a white, amorphous substance— $(C_{10}H_{61})_x$ —and can be obtained by dissolving the crude material in chloroform and precipitating with alcohol. It absorbs oxygen from the air, and is converted into vulcanite when treated under pressure with sulphur.

Pharmaceutical Journal.

TO REMOVE BLOOD FROM THE CLOTHING.

J. T. Rugh, M.D.

Several years ago, while contemplating the removal of a large bloodspot from my clothes, I recalled the action of hydrogen peroxid upon albuminous substances during operations, and immediately applied it to the spot in question, and was delighted to see the stain entirely removed. Since then I have used it many times and always with the same results. The earlier the peroxid is applied after the bloodspot is received the better the effects, but I have used it on spots more than a week old, and they were

completely made. It should be used in its full strength, and, after oxidation has ceased, it should be wiped off and another application made. Several such trials may be necessary before the stain disappears, but the process may be hastened by rubbing with the finger or a cloth while oxidation is in progress. If hot water has been used, or anything which will coagulate the albumin, the peroxid will not remove the stain, but otherwise its action is all that could be desired. I have frequently removed spots from my shirt-front, collars, and cuffs, and after the place was dried there was no evidence of any soiling having occurred. Quite recently I removed a very large stain from the carpet, following an operation in my office. I may add that I have never seen clothing bleached by the peroxid during the removal of spots.

Phila. Med. Jour.

DEATH UNDER CHLOROFORM DURING A DENTAL OPERATION.

The *Staffordshire Advertiser*, of August 26th, reports an inquiry relative to the death of Ann Rowley, a married woman, 32 years of age, living at Audley. Mr. John Vernon, a surgeon at Audley, stated that he advised the deceased, who suffered from neuralgia, to have some teeth extracted, a few at a time, without having the anæsthetic at all. She, however, expressed a preference for chloroform, in order that all the teeth she desired out could be extracted at once. An appointment was made with Mr. Shields, of Newcastle-under-Lyne, and witness accompanied the deceased to the dentist's surgery. He examined the heart before the chloroform was administered, and found it perfectly sound, and she went under the influence of the anæsthetic satisfactorily. Teeth were extracted from both the upper and lower jaw, but two other small doses of chloroform had to be administered. He noticed the pulse ceased to beat, and the usual means to restore animation were quickly practiced. Other medical aid was summoned, but the deceased did not recover. Answering a juryman, witness said there were from 18 to 20 teeth to be drawn, some decayed and others broken. The chloroform was the best obtainable, and not more than an ounce was used altogether. The coroner thought the evidence of the doctor very clear, and the jury expressed themselves satisfied. A verdict in accordance with the medical testimony was returned.

Medical Times (Dental Review).

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

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WILBUR F. LITCH, M.D., D.D.S., EDITOR.

EDITORIAL.

THE NEED FOR SKILLED ANÆSTHETISTS.

The interesting "Discussion on Anæsthesia," published in this issue of the BRIEF, must suggest to the thoughtful reader the intricacies of the conditions upon which safety in anæsthesia is dependent, the exacting and responsible nature of the duties which devolve upon the anæsthetist, and the need for trained skill in their performance. The crude, careless and hasty manner in which some of the most potent drugs in the pharmacœpia are poured by untrained hands into the lungs of patients whose condition demands the utmost carefulness of treatment is a standing reproach to surgery, and it is beyond all question true that the appallingly large list of fatalities from anæsthetics is largely due not so much to the drug as to the method of its administration—that patients more frequently die from the incompetency of the anæsthetizer than the toxicity of the anæsthetic.

The evidence direct and inferential sustaining this contention is so rapidly accumulating and so convincing that a change of methods can be only a question of time. To-day no intelligent patient, if informed as to the exact conditions attending the administration of an anæsthetic for surgical purposes would not insist upon the services of a skilled and experienced anæsthetizer. Certainly no surgeon worthy the name would not greatly prefer the assistance of a trained anæsthetist if he could be sure of having his services always available for critical cases,

and at a cost which would not too greatly diminish his own fee for the operation.

It must be admitted that the most formidable barrier to reform in anæsthetic methods is a mercenary one. The surgeon, naturally magnifying his own office, regards the administration of the anæsthetic as a detail which, under his own immediate supervision, can very well be entrusted to an advanced student or a young graduate assistant, the latter feeling himself amply compensated for his services by being permitted to watch, even if furtively, the details of the operation.

So far as the interests of the patient are concerned, the mischiefs arising from such an arrangement are twofold—the surgeon's attention is distracted from his own work by the need of watchfulness of his untrained anæsthetist, while the latter's interests are naturally more concentrated upon those surgical details he is striving to master than the anæsthetic details he is taught to undervalue by the simple fact that they are entrusted to his unskilled hands.

Upon correct anæsthetic methods are dependent not only the safety of the patient, but his immunity from suffering often of a most distressing character. Every one familiar with hospital work knows that patients who have submitted to repeated surgical operations dread the anæsthetic far more than the knife, because they suffer far more mentally and physically from the one than the other.

A graphic description of the character of this suffering is given in the following excerpt from a chapter in the personal experience of the writer:

"It is the custom of many practitioners in England (I speak only from my own experience) to administer chloroform in direct opposition to the principles laid down by the Hyderabad Commission and to the way practiced in India. Here the primary consideration is that nothing shall in any way impede the patient's breathing, and the operator consequently takes care not to place the pad or handkerchief very close to the mouth, holding it invariably at a distance of some inches, so that the chloroform may be freely diluted with air. In this way I have taken it some half dozen times, and, far from having experienced the slightest

distress, I found the sensation exceedingly soothing and agreeable as long as consciousness lasted.

"In England my experience has been far otherwise, and my dread of taking chloroform is now almost as great as the dread of being smothered or drowned. Having suffered great distress the first time, I entreated the administrator on the last occasion to allow me air the whole time, telling him how greatly I dreaded the feeling of suffocation I had experienced. * * * * At first he held the hollow pad seven inches from my mouth, and I inhaled the fumes with perfect comfort, drawing deep and regular respirations; but no sooner was I half unconscious than he clapped the pad over my nose and mouth in the way I had so dreaded. I struggled furiously for breath, but could inhale nothing but the burning, choking fumes of chloroform, that felt as if pure alcohol were being poured down my throat, and made me gasp and choke in an agonizing manner. I became frantic in my efforts to obtain air, and the few moments that elapsed before unconsciousness came to my relief were to me a prolonged agony. I am perfectly certain that had I not been physically strong, and my heart and lungs sound I must have succumbed. * * * * The memory of that struggle for life will never leave me; it sets my heart beating violently at night, sometimes when I merely recall it." *

In Great Britain as well as in Continental Europe, American observers report that anæsthetics are administered far more recklessly than in this country. The fatality list in all is, however, entirely too large, the most prolific source of disaster being in all probability undue haste. Everywhere, except perhaps among Oriental peoples, the axiom that "Time is money," is, with all its implications, an accepted gospel. To bring a patient under the influence of such general anæsthetics as ether or chloroform without great discomfort or absolute suffering often requires considerable time; this means money to the busy practitioner whose every moment is precious; and so the pace is pushed, and in this, as in other races between life and death, it is the pace that kills.

The skilled anæsthetist should be thoroughly informed as to the chemical and physiological properties of anæsthetic agents. He should be skilled in physical diagnosis and physiological chemistry and able to detect lesions of heart or lungs by

* Mrs. R. M. King, "*Nineteenth Century*," March, 1898.

auscultation and percussion, and to recognize abnormalities of the excretory organs or functions by chemical analysis or microscopical examination. He should be conversant with all the more valuable appliances for the administration of anæsthetics, and should be provided with all the agencies which may be required for the relief of dangerous symptoms. Opportunity for a careful and leisurely study of the condition of his patient for some days before a critical operation should, when possible, be afforded him. This would not only directly promote the safety of the patient, but would secure his confidence, quiet apprehension and give a sense of security, the moral effect of which could not fail to be salutary.

The anæsthetist should be a man of keenness of insight, coolness of judgment and a facility of resources, one not to be disconcerted by any crisis however unexpected or alarming, but ready on the instant with swiftness and precision to do the right thing at the right time. In the hands of such a man the surgeon could with a complete sense of security place the whole responsibility of the anæsthetic procedure, feeling perfect assurance that the anæsthetic would be judiciously administered, and that every untoward symptom would be promptly recognized and as promptly treated.

Professor Galloway, of Chicago, in a paper on this subject,* sums up the reasons why trustworthy anæsthetizers are a necessity, as follows:

1. No man can do two things at once so well as he can do either of them by itself. A surgeon cannot do his most skilful operating while devoting half his attention to the anæsthetic.

2. The operator is frequently more concerned about the result of the anæsthetizer's work than he is about the results of his own work.

3. An operation may be practically devoid of danger, while an anæsthetic is never administered without jeopardizing the life of the patient.

4. In many cases, more skill is required to administer the anæsthetic than is required to perform the operation.

* "The Anæsthetizer as a Specialist," in the *Phila. Med. Journal*, May 27th, 1899.

5. Death may occur from the anæsthetic in the hands of the most skilful anæsthetizer, but in the great majority of deaths which have occurred the anæsthetic was in the hands of unskilled anæsthetizers.

As already intimated the chief barrier to the maintenance of trained specialists in anæsthesia is a financial one. Only in large cities can such a specialty be made reasonably remunerative, even under the most favorable conditions. There is, however, no valid reason why every great hospital should not have its trained anæsthetist, provided sufficient inducements are offered to make it worth the while of men of ability to qualify themselves for the duties of the position.

The reputation of such a specialist once established, and the advantages of his skilled services demonstrated, his sphere of labor would doubtless soon extend beyond his immediate vicinage, and in critical cases he would be summoned to contiguous or distant towns and rural settlements.

In the greater number of cases, however, the masses of the people of this country must continue to depend upon the service of the local physician, surgeon or dentist. This being the case, a more careful and systematic training in anæsthesia in our medical and dental schools is an obvious need of the time. How meagre and insufficient is such instruction in the majority of schools is well known to all familiar with college work.

For the advancement of this educational reform the professional anæsthetist could be of invaluable service, for the experience he would gain in the practice of his specialty would naturally constitute him the teacher of those desirous of acquiring for themselves something of his special knowledge and special skill. This is certainly true of England, where such anæsthetists as Hewitt and Silk hold not only hospital but college appointments; and the excellent work they have done, both as anæsthetists and as teachers and writers on anæsthesia, is a strong argument in favor of the more general employment of such specialists in this and other countries.

THE SUPERVISING BOARD OF ARMY DENTISTS.

In the April issue of the *BRIEF*, the names of Dr. Donnally, of Washington, D. C., and Dr. Oliver, of Indianapolis, were mentioned as candidates for position upon the Supervising Board of Army Dentists who personally and professionally are admirably fitted to fulfil the duties which will devolve upon the Board in a manner acceptable to the Army, the War Department and the dental profession.

The friends of the Otey bill are now to be congratulated upon the fact that Dr. John Sayre Marshall, of Chicago, has consented to allow his name also to be presented as a candidate for position as one of the three members of the Supervising Board.

Dr. Marshall, from an early period in his professional career, has devoted special attention to surgery of the mouth. His chief work has been in Chicago, where since 1883 he has been recognized as one of the leading teachers of Oral Surgery and Dental Pathology in the medical and dental schools of that city. For sixteen years he has been connected with the Medical Boards of St. Luke's and Mercy Hospitals, of Chicago. He has had a large experience in all the operations upon the mouth and jaws—major and minor—having given special attention to the surgical and mechanical treatment of fractures of the jaws, cleft palate, and the removal of maxillary tumors.

His book on the "Injuries and Surgical Diseases of the Face, Mouth and Jaws," is a standard text-book in nearly all the dental colleges in the United States and Canada, and has been translated into the German language.

To a Supervising Board composed of three such men as Drs. Donnally, Oliver and Marshall, the dental profession of America could with confidence entrust the interests of dentistry in the United States Army, should the Otey bill or any similar measure be enacted.

DR. NORMAN W. KINGSLEY.

The complimentary banquet to Dr. Norman W. Kingsley "In commemoration of his fifty years of continuous practice, and in appreciation of his many contributions to the scientific progress of our profession," which was given in New York on the evening of April 7th, 1900, and a report of which appears elsewhere in the issue of the BRIEF, was a spontaneous expression of esteem and goodwill, honorable alike to its recipient and to those by whom it was tendered.

If, as Bacon says, "There is a debt of obligation from every member of a profession to assist in improving the science in which he has successfully practiced," it is a debt which has been worthily discharged by Dr. Kingsley. His classic work on Oral Deformities alone would entitle him to the grateful recognition not only of dentists, but of the entire medical profession.

The field of cleft palate deformities and their correction by mechanical means he has made peculiarly his own, and in that field his work is not only original, but in many respects exhaustive. Throughout the world he has been recognized as the great authority in that department of prosthesis, and his published writings on that subject have been a mine to which all later teachers and writers have of necessity resorted.

The golden anniversary of his entrance upon the practice of the profession he has so greatly adorned, brings to him the best wishes of his fellow practitioners throughout the world.

A half-tone reproduction of Dr. Kingsley's burnt-wood portrait of himself appears as a frontispiece to this number of the BRIEF. For this, as well as for advance sheets of the report of the banquet, we are indebted to the courtesy of Dr. R. Ottolengui, editor of *Items of Interest*.

ASSOCIATION TRANSACTIONS.

Transactions of the National Dental Association, including proceedings of the third annual session held at Niagara Falls, N. Y., commencing August 1st, 1899.

Proceedings of the Second Annual Session of the Southern Dental Association, branch of the National Dental Association, held at New Orleans, La., commencing February 9th, 1899.

Philadelphia: The S. S. White Dental Manufacturing Company, 1900.

This volume of something over seven hundred pages containing the transactions and proceedings severally of what was the American Dental Association, and what still is the Southern Dental Association, comes at least as "the outward and visible sign" of unification even if, as in the opinion of many, something is still lacking of its "inward and spiritual grace."

Doubtless unification like other graces is a growth, and must have a beginning, and an environment not hostile but fostering. From this point of view the volume before us is of most hopeful augury, for it shows not merely growth but fruitfulness.

Even if the unifying bond were no stronger than the boards and stitches which hold the leaves together it would be a good and desirable thing to have so much excellent matter from the now allied organizations appear in one volume; for such a juxtaposition must foster the spirit of professional unity, draw closer the bonds of professional fellowship, and make stronger the spirit of loyalty to the parent organization.

An analysis of the contents of the volume is not necessary; many of the papers it contains have already appeared in the official organ of the Association and other dental journals; others in their turn will doubtless be made accessible to the profession through these channels.

Both the Association and the publishers are to be congratulated upon a volume so worthy of commendation for its faithfulness and completeness as a record, for the beauty of its typography and the excellence of its illustrations. Such a work is in itself well worth the fee for membership in the National Dental Association, and should be an incentive to every qualified member of the profession to ally himself with that organization.

COMPLIMENTARY BANQUET TO DR. NORMAN W. KINGSLEY.

In New York, on the evening of April 7th, a complimentary banquet was tendered to Dr. W. Kingsley in commemoration of his fifty years of continuous practice, and in appreciation of his many contributions to the scientific progress of our profession.

The committee of arrangements who originated this very successful affair, and signed the invitations which were sent out, comprised the following names: Drs. A. L. Northrop, W. W. Walker, S. G. Perry, Wm. Carr, New York; O. E. Hill, Wm. Jarvie, A. H. Brockway, Brooklyn; Chas. S. Stockton, Chas. A. Meeker, R. M. Sanger, Henry A. Hull, New Jersey; J. Foster Flagg, Edward C. Kirk, Wilbur F. Litch, Chas. J. Essig, Pennsylvania; M. W. Foster, B. Holly Smith, Maryland; H. B. Noble, M. F. Finley, Wm. Donnally, Washington, D. C.; L. D. Shepard, Thomas Fillebrown, C. P. Wilson, Massachusetts.

Acceptances were received from the following: N. W. Kingsley, John I. Hart, W. W. Walker, S. G. Perry, A. L. Northrop, V. H. Jackson, M. L. Rhein, Ralph B. Reitz, L. C. Le Roy, R. Ottolengui, O. L. Krone, C. L. Andrews, Geo. Evans, S. L. Goldsmith, J. N. Farrar, J. Smith Dodge, J. W. Taylor, Wm. G. Tracey, Donald E. Reibold, Chas. Chamberlain, Wm. Jarvie, F. B. Keppy, H. C. Ferris, Thos. Siqueland, W. J. Turner, R. C. Brewster, O. E. Houghton, T. A. Quinlan, F. C. Walker, John A. Schmidt, A. H. Brockway, W. A. Campbell, Chas. Hubbard, F. O. Kraemer, M. N. Forney, C. S. Butler, H. J. Burkhart, G. B. Beach, A. R. Cooke, O. J. Gross, New York; C. A. Meeker, F. G. Gregory, C. W. F. Holbrook, H. S. Sutphen, F. Edsall Riley, Richard Denbigh, Oscar Adelberg, S. C. G. Watkins, R. M. Sanger, Henry A. Hull, W. E. Truex, P. I. Wilson, New Jersey; Thos. P. Stellwagen, Chas. J. Essig, Edwin T. Darby, C. A. Marvin, I. N. Broomell, W. F. Litch, Geo. D. Darby, J. Foster Flagg, Pennsylvania; B. Holly Smith, Cyrus M. Gingrich, Maryland; H. B. Noble, M. F. Finley, W. N. Coogan, Washington, D. C.; L. D. Shepard, John F. Dowsley, A. H. Gilson, E. S. Niles, Massachusetts; Edward Gaylord, Connecticut; all of whom were present with the exception of two or three, who were prevented because of sickness. In fact the number in attendance would have been doubled, but for the grip, which seems to have been particularly prevalent among

members of the dental profession, judging from the many letters of regret which were received.

An exceedingly elaborate and artistic menu had been prepared. The menu proper was on very large sheets of extra heavy enameled paper. The first page was adorned with the reproduction of a marble bust of the Saviour, which Dr. Kingsley modeled in 1868. The other three pages each contained four reproductions of some very artistic work which Dr. Kingsley has done during the past year. The work itself is something on the order of what is known as pyrography, except that in that art, a metal tool is used with which to burn lines on the wood. In Dr. Kingsley's work, which seems to be unique and original with himself, he obtains the smoothness of carbon photographs by using a tiny blow pipe, of his own construction, utilizing a tiny flame for scorching the wood, thus producing very soft effects without lines.

This menu was enclosed in large, dark green paper covers decorated with an overlap of red paper united with a white seal bearing his crest. On the inner page of the cover was attached a reproduction of a portrait of himself, which he has made in his burnt wood work. (See frontispiece.)

During the evening interesting addresses were made by Dr. William Wallace Walker, toastmaster; Dr. Norman W. Kingsley, Dr. Safford E. Perry, Dr. J. Smith Dodge, Dr. C. A. Marvin, Dr. L. D. Shepard, Dr. B. Holly Smith, Dr. Edwin T. Darby, and Dr. R. Ottolengui.

Of these, for want of space, only the introductory remarks of Dr. Walker and the response of Dr. Kingsley are given.

REMARKS OF DR. WALKER.

Gentlemen, we are here to-night in honor of a dear old friend, one who has been for a lifetime an earnest and brilliant workman in our chosen profession, and one whose name in all dental associations and dental meetings in every country and every clime has become a household word, Dr. Norman W. Kingsley. (Loud applause.)

It was a very happy thought of our friend, Dr. Ottolengui, that a dinner in honor of Dr. Kingsley might be acceptable. (Applause.) Some weeks ago it was my pleasure to attend a complimentary dinner in Rochester given to Dr. French, in recognition of his work in elevating the dental profession, and

of his work on the Examining Board of the State of New York. At that time I said I was somewhat opposed to dinners, but I have since changed my mind, and I think a few more of them would be a good thing if they afforded nothing more than the opportunity of meeting our old friends and grasping them by the hand.

The side of Dr. Kingsley's life which I will speak of for a few minutes to-night is the poetical and artistic side. His first work of this character, I believe, was that beautiful and artistic embroidery upon silk; most charming landscapes and delicate pictures have been worked on silk by him, and if Dr. Kingsley were living in Japan, I am sure that he would long ago have been decorated with the Order of the Dragon or the Canary Bird, the highest order that can be conferred upon a man in that country. (Applause.)

We next pass on to Dr. Kingsley as a sculptor; you have all had the pleasure of looking upon work of that kind accomplished by our friend. Many of us have day after day the pleasure of looking upon some of his handiwork in the Lotos Club of this city: In the front parlor of that club is a beautiful, artistic life-like bust of the Hon. Whitelaw Reid, in bronze, by Dr. Kingsley. Near by is a life-sized portrait of that same gentleman, painted by that great English artist, Herkimer. Friends of mine and friends of Dr. Kingsley and friends of Whitelaw Reid have said that of the two they would much prefer the one in bronze, because it was more lifelike and artistic. (Applause.) Here is work accomplished in marble, by a dentist, while on the other hand is the work of a skilled portrait painter, perhaps the most skilled in the world, but still the work of the dentist had the "call." (Applause.) If the old ancient sculptors could have seen the work accomplished by our brother, the men whose chisels produced such work as the Venus de Milo, they would have said: "It is well done; if not superior, it is at least equal to anything we have ever seen." (Loud applause.)

But let us pass from his work as a sculptor to this beautiful wood-etching, or whatever it may be called, that he is working on at the present time. We have seen the old burnt woodwork done with a poker, but there was nothing in that which would satisfy the high artistic style of Dr. Kingsley, and the inventive genius of the dentist was brought forth, and he himself invented the instrument by which he etches the beautiful work which you have seen this evening—the reproduction of the work of that

wonderful Dutch artist, Rembrandt. If Rembrandt or any of the old Dutch or English artists, or any of the Barbazon school could see these beautiful reproductions of our friend and brother dentist, Dr. Kingsley, I shall leave it to your imagination to guess what they would say.

And now, gentlemen, I call upon you to pledge to Dr. Kingsley your continued love, respect and loyalty; let us fill our glasses, arise and drink to his future happiness, health and long life. (Loud applause. Dr. Kingsley's health was drank, all standing, while "For He's a Jolly Good Fellow" was cordially sung by all.)

RESPONSE OF DR. NORMAN W. KINGSLEY.

I have had to live fifty years to get taffy from Dr. Walker! (Loud laughter.) But it was worth it! I would be willing to live fifty years longer to get such a send-off as he has given me. (A voice: "Live fifty years more.") I intend to.

When this subject was first broached to me I thought it was a huge joke. I said: "What, give me a dinner, a banquet? What for?" Then I was told it was because I had been in practice fifty years. But I am not to blame; I couldn't help it! I wanted bread and butter and I had to keep right at it, and as the angel Gabriel didn't blow his horn for me the years slipped away until they counted fifty.

It is almost impossible for me to take a serious view of an occasion like this, so that while I realize this is a serious occasion in one sense, and that you intend to do me a great honor, I cannot help but look upon it with another, almost absurd view, and say to myself: "I suppose next they will be building an arch and calling it after me, and after that I shall announce myself as a candidate for the presidency." (Loud laughter and applause.) As you have already pledged me your support, I really believe I have got as good a following as the other chap has. (A voice: "That's right.") The toastmaster asks me what my principles are. They are just Kingsley! (Laughter.) Plain Kingsley! (Renewed laughter.) If you put me there I will serve you, no matter whether you are Democrat or Republican; whether you are odontologists, stomatologists or any other kind of logs, it makes no difference to me; I will serve you just the same; I am seeking for votes at the present moment! (Laughter.)

There is a great deal of pleasure in looking in your faces and

realizing that you have come here to do me this honor. The highest honor I have anticipated for a long time past was that when I had climbed the Golden Stairs and looked down I should find a short paragraph in the *Tribune*, sold at three cents a copy, which would give me a few words and let me go. I had no conception that I should have an obituary notice in life, and see it in cold print; but I am afraid that is what it is going to come to.

Dr. Walker has told you why I was selected as the victim of to-night's dinner table, but let me assure you there are others here who I feel are equally entitled to it; there are plenty of them, and I hope they will get their desserts in the same way, and give me an opportunity to come, and if I can do anything by getting on my legs and making a speech, or anything else to help the occasion, I certainly will do so.

When I look in your faces and realize that some of you have come hundreds of miles to do me this honor, I am gratified and I appreciate it. It is no mean thing; I thank you profoundly. What gives me more pleasure than anything else is the fraternal brotherhood which is shown by this assemblage. Here are gathered men who have differed strenuously in their professional relations, men with whom I have differed to the point of antagonism, but here all that is forgotten, and we meet around this board and by our fraternization do honor to our calling. We bury the hatchet, smoke the pipe of peace and break bread with each other in this the closing year of the century which has seen the birth and full development of a beneficent profession.

I cannot say anything else but that I thank you from the bottom of my heart, and I hope that I may live long enough to have the opportunity of being at the fiftieth anniversary of every one of you. (Laughter and applause.)



ANNOUNCEMENTS.

AMERICAN MEDICAL ASSOCIATION.

SECTION ON STOMATOLOGY.

The next meeting of the American Medical Association will be held at Atlantic City, June 5th to 8th, 1900. The Section on Stomatology presents the following program:

SYMPOSIUM ON DENTAL EDUCATION.

1. Relations of Dental and Oral Surgery to General Medicine; Professional Status of Properly Educated Practitioners of Dental and Oral Surgery. Dr. N. S. Davis, Sr.

2. Preliminary Qualifications. Dr. J. Taft.

3. Course of Study. Dr. W. A. Evans.

4. Methods of Teaching (Didactic or Recitatorial). Dr. A. H. Peck.

5. Shall the Dental Student be Educated Independently of General Medicine? Dr. G. V. I. Brown.

6. Is Medical Education a Necessary Qualification for Dental Practice? Drs. Alice Steeves and R. R. Andrews.

7. The Practiced Value of a Medical Education in Dental Practice. Dr. W. B. Hill.

8. Technical Training versus Theoretic. Dr. John S. Marshall.

9. Should the Medical Undergraduate be Instructed in the Principles of Dentistry? Dr. M. L. Rhein.

10. Post-Graduate Study in Dentistry and Degrees Therefor. Dr. W. E. Walker.

11. Handwriting Upon the Wall; What Does it Portray? Dr. A. E. Baldwin.

12. Limitations. Dr. Eugene S. Talbot.

SYMPOSIUM ON INTERSTITIAL GINGIVITIS OR SO-CALLED PYORRHEA ALVEOLARIS.

1. Etiology. Dr. G. Lenox Curtis.

2. Neurotic Affections. D. J. G. Kiernan.

3. Indigestion Auto-Intoxication. Dr. Eugene S. Talbot.

4. Chemical Factors in Etiology. Dr. W. L. Baum.

5. Constitutional Treatment. Dr. J. H. Salisbury.

6. Local Treatment. Dr. M. H. Fletcher.

7. So-called Glands in the Peridental Membrane. Dr. M. H. Fletcher.

8. The Evolution of Decay Continued. Dr. Arch. C. Hart.

9. Coöperation of the Public Schools in Teaching. Good Teeth, Good Health. Whatever we wish to see introduced into the life of a nation must be introduced into its schools. Dr. Richard Grady.

10. Subject to be announced. Dr. V. A. Latham.

The Section on Stomatology will meet at Hotel Senate. The Officers of the Section invite all to be present and to take part in the discussions.

Those who wish to join the Association must obtain credentials from their State or Local Dental Societies, and the payment of \$5 to the Secretary of the Association. This will entitle them to the Journal for one year.

Accommodation can be had by writing F. B. Cook & Son, Hotel Senate.

Eugene S. Talbot, Secretary Section on Stomatology.

NATIONAL DENTAL ASSOCIATION.

The date of meeting of this organization has been changed from June 26th to July 10th, 1900, and the Association will convene at Old Point Comfort, Va. This is a very pleasant place in which to meet, and everything bids fair for a successful and profitable gathering. Application has been made for reduced fare on all the railroads, and the rates will be published in our next issue. We would especially urge upon the State societies that they elect their full quota of delegates and choose who will attend the National meeting. All those having papers which they wish to bring before the Association should communicate with the proper sections.

J. N. Crouse, Chairman Executive Committee.

PENNSYLVANIA STATE DENTAL SOCIETY.

The National Association having changed the date of its meeting, for this year, to July 10th, the Pennsylvania State Dental Society will meet on July 5th, 6th and 7th, at Reading, Pa., by vote of Council.

Robert Huey, President.

VERMONT STATE DENTAL SOCIETY.

At the twenty-fourth annual meeting of the Vermont State Dental Society, held at St. Johnsbury, March 21st-23d, 1900, the following officers were elected for the ensuing year: President, Dr. H. Turrill, Rutland; First Vice-President, Dr. C. W. Steele, Barre; Second Vice-President, Dr. J. A. Pearsons, Barton; Recording Secretary, Dr. V. Mound, Rutland; Corresponding Secretary, Dr. Grace L. Bosworth, Rutland; Treasurer, Dr. W. H. Munsell, Wells River; State Prosecutor, Dr. G. W. Hoffman, White River Junction; Executive Committee—Dr. J. H. Jackson, Burlington; Dr. H. Burbridge, Woodstock; Dr. R. H. Newton, Montpelier.

Next meeting will be held at Montpelier the third Wednesday in March, 1901. *Thomas Mound, Recording Secretary.*

MICHIGAN DENTAL ASSOCIATION.

The annual meeting of the Michigan Dental Association will be held at Kalamazoo, June 11th, 12th and 13th.

Chas. C. Noble, Secretary.

SOUTHERN WISCONSIN DENTAL ASSOCIATION.

The sixth annual meeting of the Southern Wisconsin Dental Association will be held at Janesville, May 2d and 3d.

F. S. Knapp, President, Platteville.

J. H. Reed, Secretary, Lancaster, Wis.

THE CHICAGO DENTAL SOCIETY.

List of officers of the Chicago Dental Society for 1900-1901, elected at the annual meeting, held in the Stewart Building, Tuesday evening, April 3d, 1900: President, George W. Cook; First Vice-President, Geo. B. Perry; Second Vice-President, H. J. Goslee; Secretary, Elgin Ma Whinney; Corresponding Secretary, C. S. Bigelow; Treasurer, A. B. Clark; Librarian, H. W. Sale; Member Board of Directors, J. E. Elinkins; Board of Censors—W. V. B. Ames, Chairman; C. N. Johnson, A. W. Harlan.

C. S. Bigelow, Cor. Sec'y, 100 State St., Chicago.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

In consequence of a contemplated new movement by the Association, with the probability of considerable benefit both to the State Boards and the more advanced colleges whose educational standards are high, the Secretary most earnestly requests from the officers and members of the several State Boards in the United States and territories a new list of officers and members.

An early compliance with this request will be most heartily appreciated.

*Charles A. Meeker, D.D.S., Sec'y.,
29 Fulton St., Newark, N. J.*

RECENT PATENTS RELATING TO DENTISTRY.

645413, Dental separator, Edward Wishart, Waterford, assignor to J. W. Ivory, Philadelphia, Pa.

645345, Dental broach, Luther A. Young, St. Louis, Mo.

645608, Dental plugger, Charles Schake, Jr., Davenport, Iowa.

646603, Artificial tooth, Herman R. Nehrbass, Hartford, Wis.

646764, Artificial tooth, Thomas Steele, Red Bank, N. J.

646629, Device for regulating teeth, Wm. P. Suggat, Boston, Mass.

647400, Artificial denture, Arthur T. Glew, Germantown, Ohio.

647010, Dental plugger, Frank L. Marshall, Boston, Mass.

32478, Design, artificial incisor tooth, Arthur T. Glew, Germantown, Ohio.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

CORRESPONDENCE.

EDITOR DENTAL BRIEF:—You would confer a favor on your Southern subscribers by warning them that dental offices in Kentucky and Tennessee are being robbed of gold foil. The work is done by two well-dressed men, and is done in the day-time. They have keys, and are prepared to do the job right. They have accurate knowledge of habits, etc., of dentists, and hunt till they find the gold.

J. C. Montgomery.

Questions and Answers.*

Question 88. Will you please give the method of using Spyer's adhesive plates, or any similar plate intended to increase adhesion between the plate and a flat palate? Also state with what success their use is attended?

C. T. Doty, Le Roy, Kansas.

It is quite probable that no one has given so much attention to methods intended to increase the adhesion of plate dentures as Dr. Spyer, and his continuous work in this direction has resulted more or less successfully. Dr. Spyer has two or three methods. In one he uses what he calls surface cohesion forms, these being made of thin metal, the surface of which is covered with many minute papilliform prominences. These are in sheet form, and can be cut to suit either upper or lower case. These are cut to suit the case, and placed over the cast immediately before packing the rubber. The prominences over the surface cause the displacement of mucus at the point of gum contact, and in this way effect surface adhesion. It is claimed that by the aid of this device, adhesion is possible even with a narrow plate. The method of using is simple enough after you have seen the metal forms.

Another method is that known as the automatic suction cavity, this being in the form of a ready-prepared metal form, which is so prepared that it leaves on the finished plate two ridges along the margins of the palatal surface in addition to the usual vacuum cavity, which is also produced by the appliance.

Another and more recent method devised by Dr. Spyer is the one to which you refer in your communication. These adhesive plates, as they are called, are used to give a soft surface to the palatal side of a hard rubber plate, and they appear to overcome the objections so pronounced when soft rubber is used for this purpose. After the case is packed, a piece of wet muslin is laid on the rubber, covering the whole surface and up to the edge of the flask; the flask is loosely closed and put into boil-

*Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

ing water for a few minutes; then into the flask press and forced down until the flask is closed. Open the flask, remove the cloth, and place a cold, adhesive plate, trimmed so that it will only come up to the alveolar ridge, upon the rubber, tin-foil side up. Again close the flask, tighten the bolts without heat, and vulcanize for ninety minutes at 31 degrees.

Question 89. What are several methods of making a successful denture for a mouth in which the palate is very flat and hard, and where the soft tissues come to the bottom of the ridge on both the labial and buccal sides? Also, how can the cheeks be protected from the sharp points frequently present on regulating appliances?

E. I. Zinkan, Southampton, Ont.

MR. EDITOR:—I am always interested in the "Questions and Answers" Department of the BRIEF, and want to say a word about it. It seems to me that you always recommend something difficult or expensive. Now it don't seem to me possible that any dentist asked Question 86 in the April issue. Using your method to clean a glass slab, each time you clean it in your way you make the next time more difficult, as you are bound to scratch the glass each time, thereby giving the cement a better hold next time; then the pad you speak of, if it has sandpaper on the under side, I should dislike very much to work it on the marble of my cabinet and scratch that all up.

I have mixed cement for twenty-five years on a piece of ordinary plate glass six inches square and one-half inch thick. To clean it I throw it in water, and in two minutes can clean it perfectly with a towel. Tell the boys some cheap way to do things when it is just as good, as many of us have all we can do to keep the pot boiling now without going to expense every time we turn around.

A. J. Thompson.



Practical Points.*

Nirvanin.—Nirvanin must be boiled to make it a stable solution for hypodermic use. Two to four per cent. solutions are best. *Dental Review.*

Removal of Silver Nitrate Stains on Teeth.—Apply iodine, changing the nitrate into the iodide of silver; then apply ammonia, leaving the tooth stainless.

Dr. Register, International Dental Journal.

The Parker Shot Swage.—The shot swage is a useful appliance for many purposes. I have tried cornmeal in the small shot swage, and find it to work perfectly, better and easier than shot. For swaging crowns it is far superior to any of the many suggestions I have tried. *Wm. H. Trueman, Dental Digest.*

To Check the Flow of Saliva.—A piece of ordinary absorbent cotton, twice the size of a pea, saturated in sandarac varnish and placed over the mouth of Steno's duct, with a large piece of bibulous paper to hold the cotton in position, will check the flow of saliva sufficiently to allow the treatment of superior molars or the insertion of a simple filling.

C. B. Coleman, Items of Interest.

Disks for Pulp Capping.—With the rubber-dam punch and No. 60 tinfoil a disk can be punched out that is admirable for capping slight exposures. It punches out a small cone, and by taking hold of the cone at the apex with pliers you can insert chloro-percha, and being in the form of a tiny cap, can be readily placed just where it is wanted, without making pressure upon the exposed pulp.

E. B. Lodge, Ohio Dental Journal.

Gutta-Percha in Setting Crowns and Bridge-Work.—I am a strong advocate of gutta-percha, because it acts as a cushion, and in case of a patient accidentally biting upon a piece of shell or solder (as found in canned goods), or a piece of bone, the jar is not nearly so great. Also, if accident *should* happen to a bridge or crown, requiring its removal, it is almost as easily done as removing a plate from the mouth.

A. W. McCandless, Dental Review.

Regulating Plates.—In the construction of regulating plates covering the bicuspids and molars, the masticating surface should be made as effective as possible. A comfortable bite is obtained by closing the opposing teeth into the waxed-up plate; then cover with tinfoil and close the teeth again to press the foil into the bite-marks, and flask. The bite-marks can be roughened with an engine bur.

E. A. Councell, British Dental Journal.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

To Remove Plaster Impression from Impression Cup.—Cut off overhanging surplus; hold the cup over a flame, and the plaster will fall out.

Dominion Dental Journal.

To Change the Shade of a Porcelain Tooth.—The shade of a porcelain tooth can be changed to a darker tint by carefully heating over an alcohol flame for a few minutes.

C. B. Coleman, Items of Interest.

Amalgam Repairs in Defective Gold Fillings.—I feel oftentimes that gold fillings, instead of being cut out, can be patched very satisfactorily by the use of amalgam where one can make a little undercut above the filling.

Dr. Pierce, International Dental Journal.

Reaming Out Root-Canals.—Many hold that it is unnecessary to ream out root-canals, but the fact that roots that have been so treated display a remarkable freedom from subsequent septicity is a strong argument in its favor.

Wm. Guy, in The Dental Record.

Filling the Temporary Teeth: Copper Amalgam.—Copper amalgam, if not abused in its use, makes an excellent filling for temporary teeth, the salts of copper having a stimulating effect on tooth structure and pulp. It is especially valuable for fragile teeth.

H. L. Belcher, International Dental Journal.

Sensitive Dentin: Orthoform.—When excavating causes great pain, dry the cavity well, lay in orthoform and close with wax. After one or two days the cavity may be prepared painlessly, or at least with greatly lessened sensibility.

Wm. Rotenberger, German Dental Weekly.

Enameling Gold Caps.—I use the Jenkins porcelain to enamel gold caps, it being easily flowed over the gold. It is necessary to make holes in the gold crown; split the crown, and the porcelain flows right along, just like plaster through a lath partition.

F. K. Ledyard, Pacific Dental Gazette.

Backing Porcelain Facings.—The small size Parker shot swage will, in time saved, soon pay for itself in a laboratory where porcelain facings are used. For that portion of the backing that goes next the porcelain, use a metal that is soft and pliable, and let it extend beyond the tooth as much as is desired. Fit it to the tooth as neatly as may be quickly done with burnishers; anneal, place on tooth and secure by riveting or splitting the pins. Wrap in thin paper to keep shot from contact with porcelain or metal. Pour sufficient shot in the swage to form a bed for the tooth, laying face down upon the shot. Fill up with shot, place the plunger in position, and screw up firmly between the jaws of a strong vise. This gives an effective pressure, and the backing will fit like a glove and may be at once inverted and soldered.

Wm. H. Trueman, Dental Digest.

Orthoform After Tooth Extraction.—Pack the socket lightly with moist cotton dipped in orthoform; absolute cessation of pain follows.

H. G. Kahlo, Indiana Dental Journal.

Hemorrhage from Socket After Tooth Extraction.—When there is a tooth standing on each side of the bleeding socket, it is easy to tie a silk ligature round each of these teeth, and by tying across the opening retain firmly any plug used as a hemostatic.

M. Woodhouse, Journal Brit. Den. Ass'n.

Decalcified Dentin in the Bottom of a Cavity.—There is not a single scientific demonstration to support the idea that decalcified dentin can ever become recalcified by natural processes. Aside from this it has often been pointed out that this softened material may contain certain products of microbic life which are not affected by disinfectants, and are very poisonous to the pulp if left inclosed in the cavity.

F. B. Noyes, Dental Cosmos.

Setting Logan Crown with Porcelain Body.—Prepare root with bevel at an angle of 45 degrees to a point well under the gum at labial surface. Burnish a piece of very soft platinum over end of root, leaving surplus posteriorly and at sides, and perforate for reception of pin. Mix body, and fill recess of crown over-full, and push home as if using cement. With bibulous paper absorb moisture, and remove surplus body with camel's-hair brush. Remove all together and carry to furnace. Baking and cooling will take about ten minutes. Have perfect fitting V-joint. Cement to place as usual.

R. M. Sanger, Dental Cosmos.

Vulcanizing Between Metal Surfaces.—Burnish tinfoil No. 10 over the lingual surface, smoothing out all wrinkles and folds, and reproducing the natural rugæ. Remove carefully, and coat the surface of the model with shellac and replace the foil. When varnish is dry, polish the foil surface with soapstone on a ball of cotton. Then burnish, one over the other, thicknesses of tea lead, to represent the thickness of the rubber to be used. On the alveolar ridge use only sufficient wax to hold the teeth in position and cover the heads of the pins, forming the gums with wax as usual. Adapt another piece of tea lead to catch and remain in the plaster with the teeth. When separated and the intermediate layers of tea lead removed and the wax boiled out, there will be a bright tinfoil surface on the model side of the flask and a dull tea lead surface on the other. Before packing the rubber, soap the tinfoil surface thinly and polish the tea lead surface with mercury rubbed in with cotton. The higher the polish given, the more finished will be the vulcanized surface. After vulcanizing, to give high polish, use softest brush-wheel and whiting. Plate thus produced will be thin, light and springy.

Leland Otis Green, Dental Review.

Quick Vulcanizing.—By using "Poulson's Quick Vulcanizing Rubber," allowing only 20 minutes at 335° F., dentures are quickly made, the rubber being elastic, tough and not burnt in any way. It will be found valuable for quick work.

W. J. Turner, Journal British Dental Ass'n.

Removal of Broken Crowns Set with Cement.—Zinc phosphate cement, around the pins of broken porcelain crowns, can be disintegrated by the application of ammonia water. The phosphoric acid leaves its combination with the zinc, uniting with the ammonia, and the compound falls apart.

Dr. Kirk, International Dental Journal.

To Prevent Hemorrhage After Tooth Extraction.—If I have a suspicion that the patient is hemorrhagic, I replace the tooth after cutting off half or a third of the tooth, and I have never had any trouble as a result. The tooth invariably gets loose after a short time, and is removed by the fingers. I have used it several times, and it has always proved efficacious.

Mr. Beadwell Gill, Journal British Dental Ass'n.

Adjusting Rubber Disc on Foot Blower.—The rubber disc on my foot blower having bursted, I set about putting on a new one, but gave it up in disgust after about two hours' work. Then an idea came to me which may help some one else out of the same fix. I soldered together the ends of a strip of tin about three-quarters of an inch wide, and long enough to go around the block of the blower rather loosely. I then laid the rubber disc flat over the blower, and pressed the tin hoop over the rubber and blower one-eighth of an inch; then wired it into place, took off hoop and wired net; all complete in five or ten minutes.

J. T. Wheelock.

Pulp Capping.—Remove all decayed dentin, wiping out the cavity with a creosoted pledget of cotton. If there is considerable exposure, cut a piece of No. 8 tinfoil a trifle larger than the exposure and cover with a creamy solution of chloro-percha. Carefully place over the exposure, gently pressing the edge of the disc to the dentin with a pad of cotton. Evaporate the chloroform, and prepare a wafer of oxychlorid of zinc cement (preferably Houghton's OS-Artificial, in which the oxid is ground to an impalpable powder). Mix the cement quite stiff, kneading it between the fingers to a small wafer, and quickly carry to place. The objection to oxychlorid of zinc for pulp capping lies in the use of a creamy mixture with too much free chlorid of zinc to attack the pulp. Used as above it affords a protection that is non-irritating, indestructible, non-conducting, that neither expands nor contracts, and that has no superior in stopping of decay when not left exposed to the fluids of the mouth.

I. R. Owens, Ohio Dental Journal.

Care of Gum Tissue.—After using clamps and ligatures, massage the parts with the finger and camphor or alcohol to revive the normal function of the constricted gum.

Dominion Dental Journal.

Fractures of the Inferior Maxilla.—In all cases where it has been necessary to insert wire sections I have wired from the inside to avoid lacerating the face, and in all cases have wired the fragments to the splint, instead of to each other.

F. T. Van Woert, Items of Interest.

Care of the Hypodermic Syringe.—When not in use, keep the hypodermic syringe filled with water. Having removed the needle, insert the fine wire previously dipped in glycerin. In this way the packing will remain moist, and the needle will not rust.

C. B. Coleman, Items of Interest.

Sterilization of Dental Instruments.—The method in most frequent use to-day is ideal in its simplicity and its cheapness, and it does not attack the steel. I allude to boiling for a few minutes in a one per cent. solution of washing soda in water. If they are dried while still *hot* from the water, no moisture will remain in cracks or crevices to invite rust. The idea that boiling, as here advocated, can possibly spoil the temper of the tools, is incorrect.

R. H. M. Dawbarn, Items of Interest.

Treatment of Minute Cracks in Porcelain Facings.—Minute cracks, sufficient to ruin the artistic effect, yet not enough to materially weaken the crown, may be effaced by drying the crown thoroughly with alcohol; then dropping it in liquid albolene, allowing it to remain about five minutes. Remove, wash with soap and water, dry with alcohol, and the crack will not be perceptible. Under the moist conditions of the mouth the albolene which has penetrated the crevice will never be evaporated.

J. E. Hyman, Dental Digest.

Treatment of Socket after Tooth Extraction.—Primarily most teeth are extracted because their roots are diseased; consequently it should be expected that the sockets also would be in a diseased condition. An abscess sac may be torn away from the end of the root and remain in the socket; carious or necrotic bone may be present; pus may drip from the socket, causing infection at the orifice and sloughing of the gum tissue. After an extraction the socket, then, should be thoroughly cleansed, necrotic soft tissues removed, and thorough examination made for carious bone. Cleanse until nothing but healthy tissues remain. Irrigate with an antiseptic and insert an antiseptic dressing. Watch the case for a week to be sure that all diseased parts have been removed and that healing proceeds.

R. Ottolengui, Items of Interest.

To Restore Zinc for Castings.—When zinc has become thick by repeated heating, the addition of an infinitesimal amount of aluminum will perfectly restore its fluidity. An alloy is first made of one part of aluminum to 25 of zinc. The thick zinc is then heated to its fusing point and small portions of the alloy added, until the desired effect is produced.

International Dental Journal.

Separating Rubber.—There is a great Tendency in rubber to follow the sloping surfaces of the teeth and insinuate itself into the interproximate space, forcing the gum tissue out and injuring it seriously. The gum should be protected by building a bridge of gutta-percha or cement, extending from the gingival portion of the cavity across the interproximate space, against the next tooth.

C. N. Johnson, Dental Review.

Oral Prophylaxis.—Cleanliness is the essential thing in oral prophylaxis, but its accomplishment is not such a simple matter as ordinarily considered. Carbolic acid and bichlorid solutions, held in the mouth, come in contact with only those germs that are superficially located and destroy them. When hydrogen dioxid is used it oxidizes the organic deposits about the teeth, loosens up the secretions about the gums, and sets free germs that were at first inaccessible to the action of carbolic acid or bichlorid solutions. If, *after* the germs are thus set free, carbolic acid or bichlorid solutions, or further quantities of hydrogen dioxid be used, the most desirable state of asepsis is obtained.

G. V. I. Brown, Dental Digest.

Hemorrhage from Socket After Tooth Extraction.—To make a natural plug of the blood-clot, and thus do away with the need of removing the plug—hemorrhage often recurring on removal of the plug which had checked it—all that is required to keep the blood-clot in place is some slight mechanical support. This is found in sutures passed across from side to side, using a strong needle and long pieces of horse-hair. Pass across a couple of strands, which tie as tightly as possible. This lessens the size of the wound, arrests the hemorrhage promptly, and there is no plug to be removed, thus doing away with what has been a frequent cause of renewal of hemorrhage.

W. H. Dolomere, Journal British Dental Ass'n.



Miscellany.

Homocresol.—Homocresol, $C_6H_3C_2H_5OCH_3OH$, one of the constituents of creosote, is a liquid having a clove-like odor, which is stated by Richaud (*Sem. Med.*) to be less toxic than creosol or guaiacol, not caustic, and, when applied locally, equal in anti-thermic action to guaiacol.

Bullet. de Pharm. du Sud-Est.

Antiseptic Mouth Perles.—According to Von Rudlauer these may be prepared in the form of cachous, each containing 0.001 gm. of thymol, methol, eucalyptol, saccharin and vanillin. They may be used in place of tooth or mouth washes and gargles, especially in case of children not old enough to use a gargle. For adults, two perles are allowed to completely dissolve in the mouth, the solution being swallowed. *Pharm. Central.*

Fear and Death.—

The Spirit of the Plague entered the gate.

One, watching, asked, "How many wilt thou slay?"

"A thousand," spake the Spirit, "is my quest."

The Plague made end. The Spirit left the gate.

The watcher cried, "Ten thousand didst thou slay!"

"Nay, one," the Spirit said, "Fear killed the rest."

Arabic Legend, by R. R. Bowker, The Century.

Means of Resuscitation.—Traction on the tongue is not perfectly free from all danger, at least I cannot see why muscle bundles should not be torn in the manipulation. By tickling the epiglottis nothing can be injured; in intra-laryngeal operations, even after thorough cocainization, we are afraid of the reflex caused by the least sensation of tickling. Ought we not to learn from this? It might perhaps be tried as a means of resuscitation. *W. Freudenthal, British Dental Journal.*

Hemostatic Anæsthetic Solution.—Legrand employs the following solution, particularly in lesions of the mouth, where it is desired to produce anæsthesia and arrest small hemorrhages:

R. Pure gelatin.....	30 grs.
Chlorid of sodium.....	8 grs.
Carbolic acid.....	1 gr.
Hydrochlorat of B-eucain.....	8 grs.
Hydrochlorat of cocain.....	2 grs.
Distilled water.....	3½ ozs.

Journal des Practiciens.

Nickel-Plating Bath.—Nickel sulphate, 1 kilo; neutral ammonium tartrate, 725 gm.; and tannic acid, 5 gm., are dissolved in 3 to 4 litres of boiling water, the solution filtered and made up to 20 litres with water. This bath may be used for all metals.

Pharm. Centralk.

A Unique Splinter Injury.—Conrad Rammstedt, in *Münch. Med. Wochenschrift*, reports an accident by which a splinter of wood was driven in beneath the orbit, fixing the jaws by being forced against the coronoid process, thus preventing the opening of the mouth.

Back-Bay Doctors.—A writer, with a fondness for statistics, has found that the so-called Back-Bay district of Boston, an area a mile long by one-third of a mile wide, contains 401 physicians and surgeons and 109 dentists. Of the doctors, 271 have some specialty. The population of the district is 20,000. This gives a doctor for every 50 people. *Phila. Med. Journal.*

Dental Surgeons in the Army.—It seems strange, when one thinks of it, that the appointment of dental surgeons in the United States Army should have been left to the present time. Both the dental and the medical professions will cordially indorse the movement started by the introduction of a bill into the Senate, authorizing the Surgeon-General to employ not to exceed one contract dental surgeon for every one thousand men. The bill provides that three of the number shall constitute an examining board, also supervising the practical work of others.

Phila. Med. Jour.

The Injuriousness of Artificial Teeth.—Dr. Simpson, a Boston physician, evidently does not believe in the Italian proverb, "God gives nuts to those that have not teeth." He maintains that artificial teeth are unhealthful, primarily because they enable elderly people to eat meat and other things not good for those who naturally have no teeth. The teeth, he maintains, fall out at a certain period, because nature intended that at this time of life a vegetable diet should prevail. This being so, artificial teeth become a source of danger to the welfare of the organism.

The Medical Age.

A Mountain of Alum.—In China, twelve and one-half miles from the village of Liou-Chek, there is a mountain of alum, which, in addition to being a natural curiosity, is a source of wealth for the inhabitants of the country, who dig from it yearly tons of alum. The mountain is not less than ten miles in circumference at its base and has a height of 1,940 feet. The alum is obtained by quarrying large blocks of stone, which are first heated in great furnaces and then in vats filled with boiling water. The alum crystallizes out and forms a layer about six inches in thickness. This layer is subsequently broken up into blocks weighing about ten pounds each.

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ORIGINAL COMMUNICATIONS.

THE EPIGRAMS OF MARTIAL; THEIR PLACE IN DENTAL LITERATURE.*

By William H. Trueman, D.D.S., Philadelphia, Pa.

Urbain Hemard, in his little book on the teeth, published at Lyons, France, 1582, gives, in an alphabetical list of authors from which he quotes, the name of the distinguished Latin poet, Marcus Valerius Martialis, and in a recent issue of the *British Journal of Dental Science* (Vol. XLII, Oct. 15th, 1899, page 923) he is editorially referred to as one of the ancient writers relied upon to prove that mechanical dentistry dates back to at least the time of the Roman Empire. Noting that dental writers during the more than three centuries intervening between these two references to his work have quite frequently quoted his epigrammatic sayings, or have, in various ways, referred to his writings, has awakened an interest to examine the work in question, especially to ascertain its bearing upon dental science and dental history.

The biography of Marcus Valerius Martialis is involved in obscurity. It is generally conceded that he was born at Bilbilis, a small ancient town in the northern part of Spain, later known as Bubiera, about A. D. 40. On attaining manhood, he went to Rome with the intention of qualifying himself for the bar, but soon realizing that he had no genius or inclination for that profession, he applied himself to the study of literature and poetry. In this pursuit he achieved a marked success; his learning, his readiness to appreciate and to adjust himself to his surroundings,

*Read before the Pennsylvania Association of Dental Surgeons, May 8th, 1900.

his tact, his wit, his urbanity and his unscrupulousness when it best served his ambition, quickly opened the way to literary and political distinction. He soon numbered among his associates many of the first writers of the age. He became the favorite of the Roman court, and in return for his flatteries and his obsequious adulations of the infamous Domitian, the last of the twelve Cæsars, was the recipient of many honors and privileges. He attempted, on the downfall of this notorious monarch and the attendant political revolution, to ingratiate himself with his successor, but the spell was broken. Trajan turned a deaf ear to him. Bereft of his position, with no hope of retrieving it, forsaken by the friends of his prosperous days, and in poverty, his thoughts turned from Rome to his native land. During the thirty-five years of his sojourn at Rome he had seen enough to know that a discarded favorite could expect no favors. The satiating frivolities of his past life were now bitter memories, and he sought to spend the shortening years left to him in peace and quietness near the home of his youth. Sad, indeed, were his reflections as he thought of his glorious past and looked forward to the gloomy future. We may imagine them reflected in an epigram addressed to Callistratus:

"I am, I confess, Callistratus, and have always been, poor; yet I am not an obscure or unknown knight, but am read throughout the world, and people say of me, 'That is he!' and, what death has awarded to but few, has become mine during my lifetime. But you have halls, resting upon a hundred columns; your coffers with difficulty contain the wealth which you have gained as a freedman; vast farms in Egyptian Syene are yours, and Gallic Parma shears for you innumerable flocks. Such are you and I; but what I am, you cannot be; what you are, any one of the multitude may be." There is in this, probably, an allusion to the statue a nobleman, named Stertinius, had caused to be made of him and placed in his library—at that time, as now, a statue to a living man was an unusual honor; few are so honored when their life's work is complete. In return for past favors, his friend, the younger Pliny, furnished the means for his return to Spain. He there gained the affections of a woman of fortune, who, on their marriage, settled upon him a share of her possessions. He was thus enabled to end his checkered career in comparative affluence and ease.

Martial's life covered a large portion of the first century of

the Christian era, a period of keen interest to the student of Roman history. That mighty empire had passed its zenith. Politically and socially it was rotten to the very core. Martial owes the distinguished honor of being numbered with the few whose work has survived the age in which they lived, as much, perhaps, for having recorded in strong, plain vigorous language the manners and customs of those among whom he moved; he is, in fact, the only writer who has entered into the minute details of their daily life, who has raised the veil and exposed to the world the social and political vices which sapped the strength, morally and physically, of the Roman people, and made them later an easy prey to a barbarian race. Above and beyond this, however, he was a master epigrammatist, and has the reputation of being one of the purest Latin writers of the age in which he lived.

The volume before me, dated 1897, published by George Bell & Sons, London, successors to Mr. H. G. Bohn, is one of a series known as "Bohn's Classical Library." More than half a century ago, Mr. H. G. Bohn, London, England, began the publication of reprints and translations of the classical literature of England, Germany, France and Italy, with two objects in view: First, that his editions should be so excellent a rendering of the originals as to deserve the name selected for them, "Standard Libraries;" and second, that, while well printed on good paper, and furnished with all needful illustrations, they should be so low in price as to secure for them a wide circulation. Both objects have been admirably attained. Bohn's libraries now cover very thoroughly the whole field of solid literature, numbering about eight hundred titles, and have received the cordial endorsement of many discriminating, scholarly men.

In this volume, entitled "The Epigrams of Martial Translated into English Prose," said to be the first complete translation of Martial's poems into the English language, no attempt has been made to preserve the metrical arrangement of the original. The editor has endeavored to give a faithful translation of Martial's Latin in good English; this he has supplemented, as far as they could be found, by metrical versions of other translators. This gives to the book added value, and makes it more entertaining and instructive to the general reader.

Writers differ greatly in their estimate of the motives which prompted Martial's allusions to some features of Roman life.

He exposes with unflinching boldness, and castigates with severity, the two great evils of his time, excesses in living and laxity in morals. So plain, indeed, is his language, and so little refined his expressions when dealing with these matters, that he has been called an obscene poet; and in nearly all the English translations those portions of his writings thus offending have been omitted. To the general reader, one who seeks only the wit, the humor, the *bons mots*, one who is interested in its literary excellencies only, this is no disadvantage. To the student, however, who is interested in its historic bearings, it takes from Martial's writings that which has, perhaps, most tended to their preservation and has given them a value above and beyond that assigned to contemporary writers fully his equals. The editor of this edition has adroitly met the difficulty of publishing an inoffensive, unpurgated Martial by giving in the original Latin those portions which would not be tolerated if faithfully translated into English, accompanying them by the Italian version of Graglia, who, he says, "has been rather dexterous in refining impurities." He has thus presented us with a book that to English readers is as acceptable to a prude as it is valuable to a student who desires to know, and should know, all there is to be known; to whom a mutilated narrative is a vexatious abomination. He might have, however, made of it a better book for English readers by more freely using Graglia's Italian.

Whether Martial should be credited with an honest purpose of posing as a reformer by holding up to public gaze the hidden villainies, the hollowness and depravity of Roman life; or whether he merely catered in spicy language to an impure taste, teaching evil while reproving it, it is generally conceded that his constant and severe reproofs were well directed and had a beneficial effect.

Andrew Amos, Esq., wrote, some years ago, a book entitled "Martial and the Moderns," that is well worth reading. It is composed of selections from Martial and from modern poets, grouped together, with the object of showing how much a classical writer, whose works had fallen into neglect, may have contributed to form the character and advance the position of English literature. The writer suggests that these writers may have found in Martial's works much that has tended to form and fashion their own peculiar style, and that ideas and expressions thus culled have made a lasting impress, advantageously, upon modern English literature. He gives numerous examples where similarity of

thought and expression may readily be traced. He has collected the best of Martial's poems, and made, taking it all in all, whether we agree with him or not, a very interesting scholarly book; it would be more acceptable to English readers, however, although perhaps less scholarly, if it contained less that is untranslated. It is an excellent presentation of Martial the poet, the wit and the humorist. The mere fact that his works have come down to us almost, if not quite complete, while the writings of so many of his day have suffered serious loss, is at least indirect evidence of their value. That they were very popular and in demand when first published, and enjoyed a more extended circulation than weightier and more pretentious works no doubt has contributed to this; but they have, and always have had, recognized merit. It is, indeed, their intrinsic merit that has enabled them to so well hold their own that to-day we may address a troublesome borrower the same advice that Martial gave to his friend Luperus (Book I, epigram 117), when, having become tired of his constant requests for the loan of his book of epigrams, he directed him to the book store of his publisher, Atrectus, opposite Cæsar's forum, assuring him that he could there get, promptly, "for five denarii a nice new copy smoothed with pumice-stone and adorned with purple." Quite as promptly as would have Atrectus during the life of its writer reached a copy from his shelves, will a bookseller of to-day supply on demand a nice new copy, fresh from the bindery and the press, asking about the same price that Atrectus charged. (Price of Bohn's translation, cloth bound, 7s. 6d.)

It is not my purpose, however, to consider at length the literary merit of Martial's epigrams. Present interest centers exclusively upon their place in dental literature. Are they entitled to it or not? To decide this I will now produce those epigrams, or portions of epigrams, that may have a direct or remote bearing upon this question, taking them as I find them in the book, *seriatim*; digressing, however, in the first quotation, which, while not in direct line, seemed worthy of a place.

Addressing Fescennia, he says: "That you may not be disagreeably fragrant with your yesterday's wine, you devour, luxurious Fescennia, certain of Cosmus's perfumes. Breakfasts of such a nature leave their marks upon the teeth, but form no barrier against the emanations which escape from the depths of the stomach. Nay, the fetid smell is but the worse when mixed with

perfume and the double odor of the breath is carried but the further. Cease, then, to use frauds but too well known, and disguises well understood; simply intoxicate yourself." (Book I, epigram 87.) A pointed rebuke to those who would utilize the perfumer's arts to cover neglect of cleanliness or the effects of vice.

Of Ælia he writes: "If I remember right, Ælia, you had four teeth; a cough displaced two, another two more. You can now cough without anxiety all the day long. A third cough can find nothing to do in your mouth." (Book I, epigram 19.)

This, a witty poet has paraphrased:

"When Grammer Gurton first I knew,
Four teeth is all she reckon'd:
Comes a damn'd cough and whips out two,
And t'other two a second.

Courage, old Dame, and never fear
The third whene'er it comes;
Give me but t'other jug of beer,
And I'll insure your gums." (Tom Brown.)

To Fidentinus, a plagiarist, he administers a sharp rebuke: "Do you imagine, Fidentinus, that you are a poet by the aid of my verses, and do you wish to be thought so? Just so does Ægle think she has teeth from having purchased bone or ivory. Just so does Lycoris, who is blacker than the fallen mulberry, seem fair in her own eyes, because she is painted. You too, in the same way that you are a poet, will have flowing locks when you are grown bald." (Book I, epigram 72.)

He advises a nearly toothless maid, Maximina, poetically, to keep her mouth shut: "'Laugh if thou art wise, girl, laugh,' said, I believe, the poet of the Peligni (Ovid). But he did not say this to all girls. Granting, however, that he did say it to all girls, he did not say it to you: you are not a girl, Maximina, and you have but three teeth, and those plainly the color of pitch and of boxwood. If, therefore, you believe your mirror and me, you should shrink from laughing as much as Spanius dreads the wind, Priscus a touch*; Fabulla, with chalked face, a rain-cloud, or Sabella, painted with white-lead, the sun. Put on a countenance more severe than the consort of Priam and his eldest daughter-in-law. Avoid the pantomimes of the amusing Philistion, and

*The one dreads that his hair, the other that his dress, should be disarranged.

gay feasts, and whatever by its wit and mirth distends the lips with broad laughter. It befits you to sit by the side of an afflicted mother, of a wife lamenting for her husband, or a sister for her affectionate brother, and to seek your recreation only with the tragic Muse. Take my advice, weep if thou art wise, girl, weep." (Book II, epigram 41.)

Sedley's version of this reads rather more smoothly:

Ovid, who bids the ladies laugh,
Spoke only to the young and fair:
For thee his counsel were not safe,
Who of sound teeth have scare a pair.

If thou thy glass or me believe,
Shun mirth as foplings do the wind:
At Durby's farce affect to grieve;
And let thy eyes alone be kind.

Speak not though 't were to give consent,
For he that sees these rotten bones
Will dread their monumental scent,
And fly thy sighs like dying groans.

If thou art wise, see dismal plays,
And to sad stories lend thy ear;
With the afflicted spend thy days,
And laugh not above once a year.

He describes an aged and faded beauty with matrimonial aspirations, as possessing but "three hairs and four teeth, with the chest of a grasshopper and the legs of an ant." (Book III, epigram 93.)

"Thais has black, Læcania white teeth; what is the reason? Thais has her own, Læcania bought ones." (Book V, epigram 43.) Hodgson makes of this a distich:

"Kate's teeth are black; white lately Bell's are grown;
Bell buys her teeth, Kate still keeps her own."

"That guest reclining at his ease on the middle couch, whose bald head is furnished with three hairs, and half daubed over with pomade, and who is digging in his half-open mouth with a lentisc tooth-pick, is trying to impose upon us, Æfulanus; he has no teeth." (Book VI, epigram 74.) Elphinston's version is, perhaps, more pleasing:

"Who lounges lowest in the middle bed,
Rich unguent portioning his three-hair'd head;
And, with the lentisc in his mouth, looks big;
But looks a lie: he hath no teeth to dig."

In epigram 13, book VII, we may imagine a reference to the custom of exposing ivory and bone dentures to the air and sunlight when they became discolored from long use; a practice recommended by dental writers from the year one until ivory and bone dentures became obsolete. "Lycoris the brunette, having heard that the ivory of an antiquated tooth recovered its whiteness by the action of the sun at Tivoli, betook herself to its hills, sacred to Hercules. How great is the efficacy of the air of the lofty Tivoli! In a short time she returned black."

In epigram 53, book VII, he complains concerning some useless presents sent him, among them seven tooth-picks; he would much prefer that the gift had been larger and in hard cash.

Coughing, as a cause of tooth-loss, is not often referred to in modern dental literature. Martial gives a second instance of its dire effect upon loose teeth. "Picens had three teeth, which he coughed out all together one day as he was sitting at the place destined for his tomb. He collected in his robe the last fragments of his decayed jaw, and buried them under a heap of earth. His heir need not collect his bones after his death; Picens has already performed that office for himself." (Book VIII, epigram 57.)

He speaks of Galla laying aside her teeth at night with her silk garments. (Book IX, epigram 37.) Our next quotation, an epigram addressed to Gallus, who seems to have been a man of wealth, with whom the author had been on intimate terms, but whose friendship was becoming unpleasantly exacting (see epigram 82, book X), raises the question whether our profession had at this time a representative at Rome. "You expect me, Gallus, to be always at your service, and trudge up and down the Aventine mount three or four times a day. Cascellius extracts or repairs an aching tooth; Hyginus burns away the hairs that disfigure the eye; Fannius relieves, without cutting, the relaxed uvula; Eros effaces the degrading brand-marks from slaves' foreheads; Hermes is a very Podalirus in curing hernia; but tell me, Gallus, where is he that can cure the ruptured?" (Book X, epigram 56.) He seems to fear the latter may result from the exertion of so often climbing the steep hill to his friend's stately mansion.

To Lælia he says: "You wear bought teeth and bought hair, Lælia, without a blush. What will you do for an eye? You cannot buy that."

Among the articles suitable for presents to guests at feasts,

he describes a tooth-pick: "A piece of lentisc wood is best; but if that is unattainable, a quill may relieve your teeth." (Book XIV, epigram 22.) A little farther on we find, under the heading "tooth-powders," this epigram: "What have I to do with you? Let the fair and young use me. I am not accustomed to polish false teeth." (Book XIV, epigram 56.) Probably, as a bit of witticism, or a joke, this was to be inscribed upon a package of tooth-powder presented to a guest with teeth like Lælia's. We gather from reading his works that in Martial's circle such like compliments were by no means uncommon.

I have now quoted all that a careful study of the book reveals that can be strained into a reference to dental science or to dental art—hardly a single page of the six hundred and sixty it contains, and what have we learned beyond the mere fact that false teeth were in use at the time these epigrams were written? Were we dependent upon Martial for this information; did he impart anything other writers have failed to record; did his works increased our knowledge in this direction, in any manner, form or shape, then we could, indeed, in justice should, number Martial with those who have contributed to our calling's literature. We are, however, indebted to him for nothing, absolutely nothing. The antiquity of artificial teeth is made known to us by writers who were ancient when he was born; and specimens exist to-day antedating the Roman Empire. Give him his full due for what he has done; enjoy his witticisms and his jokes, his trite sayings, his stinging satire, his pungent sarcasm and irony, his severe censure or his well-placed ridicule, if you will. He was a past master in all these. Following him, if you can stand the stench, as he portrays the shady side of Roman life from the palace to the slums, he speaks from experience and of experience, freely and unblushingly, in words that need no interpreter; he meant to be understood, and is complimented by your blush. Place him on the pedestal of a dental writer, and he turns to you a rhinoceros nose.*

*The Romans often expressed ridicule by turning up or wrinkling the nose—"they have the nose of the rhinoceros." (Epigram 3. Book I.) The modern gamin is apt to make this more expressive by placing his thumb on his wrinkled nose and vigorously vibrating his fingers; a manœuvre, probably originating from the Roman citizens custom of at times directing attention to this sign of contempt by pointing towards it with his thumb.

DISEASES OF THE ANTRUM AND THEIR
TREATMENT.*H. H. Beadle, D.D.S.*

The antrum or maxillary sinus is a cavity within the superior maxillary bone connected by a small opening with the middle meatus of the nose. It allows proper contour of the face, without the weight of bone, and makes the nutriment more easy. Its principal utility is to give resonance to the voice, and the variations in tone are due in a large degree to the size, shape and condition of this cavity. It connects with the air passages at the point of juncture of the ethmoid and palate bones and the turbinated process of the superior maxillary, usually at its highest point. The cavity is not formed until childhood is past, hence antral disorders are unknown in infancy.

The mucous membrane lining the antrum is continuous with that covering the bones and cartilage of the nasal cavity, and is therefore liable to the same diseases and is materially affected by the condition of the air-passages. Nasal catarrh may induce chronic antral disorders; the roots of decayed and devitalized teeth may sometimes penetrate the floor and become points of irritation and infection; the projecting roots of dead teeth may be the cause of actual empyema; traumatism is a frequent cause of degeneration, as for instance the rough extraction of teeth; the presence of foreign substances sometimes induces a diseased condition. (A root of a tooth may be forced into the cavity while extracting.) Diseases of the frontal sinus may affect the antræ. Whatever the source of origin of antral diseases, the usual phenomena present themselves as those of a disordered mucous membrane.

The steps of the degeneration may be stated as follows: Hyperemia, succeeded by congestion and suppression of the mucous secretions, followed by an active state of inflammation with a profuse watery discharge. If the irritation is continued the tissues finally ulcerate and break down. Caries and even necrosis may follow with a profuse discharge of pus.

The symptoms attending the early stages of catarrh of the antrum are much like those of catarrh of the air-passages. There is a feeling of dryness and pain and sense of pressure in the antral region; the voice changes as in a hard cold; as the inflammation progresses it assumes the chronic form, resulting in an empyemic

condition. Pus forms in such quantities that the antrum is filled, with a closing of the natural openings. Septic fever generally sets in, with an increased sense of pressure and severe pain; and dilatation of the antral walls at their weakest point, it may be in the orbital region, at times forcing the eye from the socket.

The prognosis of antral disorders is usually good provided; all sources of irritation can be removed. Treatment in cases of simple catarrhal inflammation resolves itself into the use of nasal douches.

When, however, there is a filling up of the sinus, either hydromatous or empyemic, the cavity must be opened, which may be done by entering through the alveolus of the buccal root of a carious six-year-old molar, or by piercing the process at a point over and between the roots of the second bicuspid and six-year-old molar at an angle of about forty-five degrees. After making a good-sized opening, the cavity should be washed out with tepid water, pyrozone three per cent. diluted one-half, followed by borolyptol full strength; this treatment should be repeated if necessary. The use of a drainage-tube is not advised. Having established perfect drainage, there are few cases that will require more.



TRANSLATIONS.

CONCERNING MOUTHWASHES.*

Dr. G. I. Vitol.

Translated from the Russian

by

GEORGE ALEXANDER SAXE, M.D., New York.

The fact that healthy teeth are not only a thing of beauty, but an important factor in the balance-sheet of health, is being more and more widely recognized, not only in the medical world, but in circles that are entirely foreign to medicine. Statistics concerning the health of the teeth, for the most part collected by German, English, and Swedish dentists, give very ungratifying results. It has been shown that healthy jaws are, without doubt, very rare indeed in civilized countries. When one considers the suffering that is caused by affections of the teeth, and when one remembers that unhealthy teeth may lie at the root of a long list of maladies, especially diseases of the stomach, the most ignorant person will ask: Is it possible that there is no remedy that can arrest the decay of the teeth?

The teeth are destroyed for the most part by caries. Remains of the food become lodged in the spaces between them, and the starchy constituents of these food particles, under the influence of bacteria, are converted into acids which corrode the enamel,—decalcify the other hard stratum of the teeth; pathogenic germs penetrate into the minute fissures and cavities thus formed and destroy the dental substance. In this way are produced those cavities that grow larger and larger, and that ultimately lead to a complete destruction of the tooth.

Another cause of the loss of a tooth may be disease of the mucous membrane lining the cavity of the mouth, especially chronic suppurative inflammation of the periosteum of the dental roots, that may be followed by a loosening and falling out of a tooth which is still perfectly healthy.

*Special translation for the DENTAL BRIEF from the original article published in *Vratch* (St. Petersburg), Vol. XXI, Nos. 9 and 10.

Dentistry arose in France in the beginning of the last century, and it was in that country that attention was first paid to the hygiene of the teeth. It is to be noted that in the eighteenth century the same means were employed in the care of the teeth that are still most frequently used at the present day—the tooth-brush and the mouthwash. At first both these measures were used principally for the mechanical cleansing of the mouth, a cleansing which to-day may also be said to form the basis of all dental hygiene. It is true, the cavity of the mouth is rarely cleaned properly, and Professor Miller, of Berlin, is right in saying that, “in cleansing the teeth one must proceed thoughtfully and rationally.” (1)

This simple task—the operation of brushing our teeth—is distasteful to us because of our inborn laziness, so much so that this fact was recognized from the very inception of the tooth-brush, and the attempt was made to render the process more agreeable by giving a pleasant taste to the mouthwashes that were at the same time supposed to exercise a beneficial effect upon the mucosa of the oral cavity.

More recently it was found that the principal etiologic factor in dental diseases is the action of bacteria which destroy the dental tissue directly or indirectly. Hence antiseptics were added to the mouthwashes in order to destroy the numerous microbes that are found in the mouth. A large number and a vast variety of mouthwashes have appeared since then, and there is hardly a known antiseptic that has not been employed for this purpose. Every new germicide that is introduced at once enters into the composition of some preparation that is declared by its inventor to be the “latest mouthwash” and “the best remedy for the mouth,” without regard as to whether this substance is suited for use in the oral cavity or not. In this connection Gerlach aptly says (2): “It is clear that a preparation destined to be used as a disinfectant in a slaughter house, etc., must fulfill entirely different conditions than an antiseptic solution that is to be used daily as a cosmetic wash for the mouth.”

Until now scientific hygiene has taken but little interest in the study of the existing mouthwashes. And no wonder; for who will be inclined to work on a subject that the most unblushing advertisers have threshed out beyond all measures of credibility.

My own investigations were, properly speaking, undertaken

only accidentally. The fact is, I was recently engaged in studying the efficiency of the new antiseptic—formaldehyd. The prominent quality of this substance as an antiseptic of high degree of potency, which at the same time was innocuous to the organism, suggested to me that formaldehyd must be, in all probability, an ideal antiseptic for the oral cavity. I regret that I am compelled to say right here that my expectations were not realized. Formaldehyd cannot be used as a daily antiseptic in the mouth. Just as good as it is for disinfecting textile fabrics, furs, etc., just so bad is it when used in the oral cavity. In order to determine the exact mode of action of formaldehyd in the mouth, and in order to measure its exact degree of superiority over other remedies and preparations that are recommended for the disinfection of the oral cavity, I instituted a series of comparative tests—partly chemical, partly bacteriologic—with the various mouthwashes and antiseptics that are found in the market.

Authorities differ in their demands upon an antiseptic substance that is intended to be used daily in the mouth. Some maintain that complete asepsis of the mouth must be secured, and with this aim in view they recommend the use of the strongest antiseptics known, e. g., mercuric bichlorid, salicylic acid, etc. The fact that these substances are injurious to the teeth and to the oral mucosa is not a formidable disadvantage in the eyes of the advocates of complete asepsis. Every remedy, they argue, has some untoward effect, and yet is used successfully for the purpose for which it is intended. Therefore, in the case of mouthwashes we must overlook certain collateral effects, even if these be undesirable. Ordinary common sense will suggest very weighty objections to such a conclusion. In the first place, a mouthwash is not a medicine. Medicines are employed when health is endangered, while mouthwashes must be used daily, constantly. Again, a complete asepsis of the mouth is impossible, even with the use of the strongest antiseptics; and even if it were possible, it would be injurious because, as the most recent researches have shown, certain bacteria that have their habitat in the mouth are necessary to digestion. Cosmetic preparations that are accessible to everyone should be, first of all, perfectly harmless. For this reason, in Austria, for example, the sale of mouthwashes containing salicylic acid is prohibited. A similar prohibitive statute should be enacted in all civilized countries.

Others, among whom I include myself, are of the opinion that the first condition for a mouthwash that is intended for daily use is perfect harmlessness, and that its antiseptic efficiency is of secondary importance. We may consider a mouthwash efficient in this sense if it will inhibit the multiplication of the bacteria, and will prevent their spread into other parts of the mouth. Professor Rosenberg, of Breslau, who has written several clinical reports upon this subject, lays great stress upon the statement that a rational mouthwash must be harmless and non-irritating to the mucous membrane of the mouth. I fully agree with him from a purely chemical point of view. Rational hygiene of the oral cavity must aim at rendering the mouth unfavorable for the growth of germs, partly by mechanical measures, and partly by the use of mild antiseptics.

The following then are the requirements for a good mouthwash in the order of importance: (1) Perfect harmlessness to both teeth and mucous membrane. (2) Capacity to inhibit the growth and development of germs. (3) Prolonged duration of effect after using. (4) A taste that is as agreeable as possible.

These four conditions I took as the basis of my investigations. I compared the efficiency of the following solutions with formaldehyd: (1) Miller's mouthwash containing mercuric bichlorid and benzoic acid. (2) The same author's mouthwash composed of a solution of thymol and benzoic acid. (3) His solution containing benzoic acid and rhatany (*krameria*). (4) A solution of salicylic acid 1.300. (5) A solution of formalin 1.200. (6) Potassium chlorate in 5 per cent. solution. (7) "Odol." (8) Botot's water. (9) Pierre's water.

It was found that the majority of antiseptics cannot be used in the mouth at all, inasmuch as they have a strong acid reaction. They dissolve the calcium salts contained in the hard dental substance, and therefore should never be employed as disinfectants in the mouth. Hefelmann (3) gives figures concerning the decalcifying action of various mouthwashes, and among such solutions he mentions those proposed by Miller, including the latter's saccharin solution.

As the exact physiological conditions that exist in the mouth cannot be reproduced artificially in any way, I conducted my bacteriologic experiments by testing the efficiency of the solutions in the oral cavity itself. I also paid special attention to the duration of the effects of each mouthwash in the mouth. In my

opinion, it is not so important that the remedy shall act instantaneously, as that it shall have lasting effects upon the teeth and the mucosa. The teeth are never cleaned more frequently than three or four times in twenty-four hours, i. e., at intervals of say four or five hours at least.

In order to avoid repetition, I shall first describe some bacteriologic tests conducted with the aid of the above-named substances.

In estimating the bactericidal value of any given mouthwash, it is necessary, above all, to answer the question as to how the remedy under consideration acts in the mouth. Although experiments with these solutions in test tubes, showing the action of the antiseptic upon pure cultures of one germ or another, are very interesting, their practical value is very limited. Some substances act admirably in a test tube, but when tried practically in the mouth, given a negative result, and vice versa.

Miller was the first to show the methods that are to be pursued in investigating the number of microbes present in the mouth. I employed a modification of this author's second method. I began by determining the number of germs in a mouth that had not been cleaned. Next the mouth was thoroughly cleansed by means of the mouthwash to be tested, and a quarter of an hour later its bacterial contents were examined once more. In order to determine how long the action of the antiseptic lasts, a third examination was made three hours later. The preparations numbered 1, 2, 3, 8, and 9 were employed at times in 10 per cent., at others in 5 per cent. aqueous solutions, and each remedy was tested at least twice or three times, the figures given being the averages. In the accompanying table the number of colonies found is shown in percentages, the number in an unclean mouth being taken as 100. The number of germs in the freshly prepared solutions was determined by plate cultures in Petri dishes.

TABLE I. SHOWING PERCENTAGE OF BACTERIA.

NAME OF SOLUTION.	IN UNCLEANED MOUTH.	A QUARTER OF AN HOUR AFTER USING.	THREE HOURS AFTER USING.
(1) Miller's HgCl_2 and benzoic acid. 10 per cent. 5 per cent.	100 100	12 per cent. 15 per cent.	15 per cent. 35 per cent.
(2) Miller's thymol and benzoic acid. 10 per cent. 5 per cent.	100 100	30 per cent. 54 per cent.	48 per cent. 130 per cent.
(3) Miller's krameria and benzoic acid. 10 per cent. 5 per cent.	100 100	42 per cent. 109 per cent.	65 per cent. 112 per cent.
(4) Warm salicylic acid solution. 1:300	100	8 per cent.	31 per cent.
(5) Formalin. 1:200.	100	13 per cent.	141 per cent.
(6) Potassium chlorate. 5 per cent.	100	43 per cent.	121 per cent.
(7) Odol. 10 per cent. 5 per cent.	100 100	22 per cent. 39 per cent.	53 per cent. 66 per cent.
(8) Botot's water. 10 per cent. 5 per cent.	100 100	52 per cent. 80 per cent.	111 per cent. 107 per cent.
(9) Pierre's water. 5 per cent.	100	88 per cent.	111 per cent.

Miller and those that followed him only examined the contents of the mouth a quarter of an hour after the use of the mouthwash to be tested, and on the basis of the findings thus obtained determined the comparative efficiency of the various antiseptic solutions. As will be seen by a glance at the accompanying table, such a procedure can only give misleading results. In order to judge the efficiency of a given mouthwash accurately, it is necessary, first of all, to determine the *duration* of the effects which it produces. What benefit can we expect from a mouthwash that manifests a strong antiseptic effect after fifteen or thirty minutes but subsequently, owing to its irritant action on the mucous membrane of the mouth, produces an increase in the development of bacteria? Thus, for instance, my table shows that a $\frac{1}{2}$ per cent. solution of formalin is a prompt and efficient

antiseptic, acting fully as well in a quarter of an hour as the 10 per cent. solution of Miller's compound of bichlorid and benzoic acid (contains 1:500 bichlorid); but after three hours the bichlorid still continues to act vigorously, while the antiseptic action of formalin not only ceases, but an increase in the number of bacteria found in the mouth is noted. The explanation of this is simple; the bichlorid combines with the superficial layers of epithelium, forming an albuminate of mercury that coats the whole cavity of the mouth; on such a soil saturated with mercury, bacteria will certainly not grow. The metallic taste of mercury persists even for four or five hours after the use of the solution—a proof that there still exists in the mouth some albuminate of mercury that acts as an antiseptic. On the other hand, formalin acts entirely differently. It penetrates quite deeply into the mucous membrane, and destroys the microbes instantly, but at the same time it destroys the vitality of the superficial layers of epithelium of the oral cavity, or, in popular language, it corrodes the mucous membrane. As the result of this action there remains a disagreeable dry sensation in the mouth after the use of a formalin mouthwash. In addition, formaldehyd has the property of rapidly decomposing when in contact with organic substances. It may be transformed into formic acid, or into the polymeric compound paraformalin, which is inactive, and thus lose its antiseptic effect. It will be seen, therefore, that formalin is an energetic bactericidal substance, but its effects cannot last long, and it does not leave an antiseptic coating on the mucous membrane as does bichlorid, but only renders the mucosa more favorable to the growth of the bacteria that survived the antiseptic action of the formalin, as well as those that entered since then through the nose or the mouth.

From the point of view of practical hygiene it is required of an antiseptic mouthwash that the number of bacteria that is found in the mouth three hours after the use of the remedy be at least not greater than in an uncleaned mouth. Under these conditions all solutions that give a percentage of bacteria in the last column of the table exceeding 100 must be considered worthless. Formaldehyd is the most worthless of them all. As it has a disagreeable taste, volatile oils are added to the mouthwashes containing formalin, in order to mask the unpleasant effect of this substance in the mouth. These essential oils, however, speedily decompose formalin, and this is probably the reason why not one

perfumer has as yet introduced a mouthwash containing this antiseptic. A solution containing this substance and a sufficient quantity of essential oils to flavor the mixture will lose all antiseptic powers on standing three or four weeks, and then is even devoid of the momentary bactericidal effect that pure formalin possesses. In view of all that has been said, then, formalin is worthless as an antiseptic mouthwash.

It is very interesting to note that Miller's 10 per cent. solutions, numbered 2 and 3 in the table, undoubtedly have lasting effects, while in the strength of 5 per cent. these compounds produce a considerable increase in the number of bacteria. The reason of this lies in the fact that in the weaker solutions the injurious, irritating effect of the antiseptic contained therein gains the upper hand, while the bactericidal effect remains in the background.

In general, it may be said that 10 per cent. solutions are but rarely employed, partly from economy, and partly from their unpleasant taste. As a rule, 2 to 5 per cent. solutions are used; but in this strength Miller's mouthwashes containing benzoic acid and thymol are positively injurious from a bacteriologic point of view. The same may be said of potassium chlorate, which, in spite of its well-known toxicity, I am sorry to say, is still employed for cleansing the mouth. In regard to Pierre's and Botot's waters, which have been widely known for years, it may be said that their taste is very pleasant, but they do not possess any antiseptic virtue whatever. They are slightly irritating, however, and in this sense somewhat injurious, as they produce a moderate increase in the number of bacteria in the mouth.

Salicylic acid is distinguished by its very marked antiseptic effect. This was demonstrated long ago by Miller. But unfortunately it is unsuited for mouthwashes on account of its strong acid reaction. As regards taste and toxic effects, however, salicylic acid is without doubt better than bichlorid, while its antiseptic efficiency is fully equal to that of the mercurial salt.

The marked antiseptic properties of odol were somewhat surprising to me. This very widely advertised preparation is quite extensively used, owing to its pleasant, refreshing taste, and to its comparatively low price when compared to the expensive French products. I have been using this mouthwash myself for several years, but until recently have never attributed any significance to the claims of the advertisers concerning its bactericidal proper-

ties. According to statements published in the German medical journals, the active principle of odol is a mixture of two-thirds of salol and of one-third of salicylic menthol ether. Other analyses state that odol is nothing but a 3 to 3.5 per cent. alcoholic solution of the former substance. My own investigations have convinced me that salol is not the active principle of this preparation. Salol is a white crystalline powder, which is easily soluble in alcohol but practically insoluble in water and in dilute alcohol. Hence it cannot be used in a mouthwash, for antiseptics must be used in a very diluted form in the oral cavity. If a few drops of alcoholic solution of salol be added to a glass of water, there will be immediately a precipitate of fine white crystals. A salol mouthwash, therefore, in general, cannot serve as an antiseptic in the mouth to any extent that is worth mentioning. As odol is certainly an effective oral antiseptic, however, the above cited analysis cannot be correct, and the active principle of this preparation cannot be salol. On looking over the literature of the subject, I came across a communication of Professor van Heurck, who as far back as 1894 isolated and described the antiseptic constituent of odol (4). He separated the alcohol from the mixture by fractional distillation on a water-bath, and treated the residue with a stream of water vapor until no traces of volatile oils were found in the container. Thus he obtained in his retort a dark-brown, oily liquid, which was cleared by repeated washing and filtering. It had an aromatic odor resembling that of oil of rose-geranium and oil of cedar, and a slightly burning taste. It was insoluble in water, but easily soluble in absolute alcohol, and had a specific gravity of 1.20. On heating with caustic soda solution it was decomposed into phenol and salicylic acid. As salol possesses similar properties, it is not astonishing that the German chemists took the active constituent of this preparation to be salol.

Having bought a number of bottles of odol in various shops, I carefully tested the statements of von Heurck, and found them to be correct in all particulars except one, namely, that I found the amount of the above-described and antiseptic in odol to be only 2.7 to 2.8 per cent., instead of 4 to 5 per cent., as the above author had found. Concerning the composition of the active principle of odol, we can only form suppositions. It is evident that this substance is a product of salicylic acid which is closely related to salol. But with the exception of the property of being decomposed into phenol and salicylic acid, all the chemical and

physical characteristics of the substance found in this preparation are different from those of salol. If an alcoholic solution of salol be mixed with water, salol will be separated as a fine, crystalline precipitate, while if an alcoholic solution of the oily substance found in odol be mixed with water, there results a very permanent milky emulsion.

After I had completed my investigations, there appeared an article by Hefelmänn, in which he analyzes very thoroughly the antiseptic substance found in odol. He found that if the odol emulsion be mixed with powdered leather, or with chopped meat, and allowed to stand, it will become perfectly clear, and all antiseptic properties will have been removed from the supernatant liquid. In the cavity of the mouth every drop of the emulsion is taken up by the mucous membrane, and this explains why the pleasant, characteristic taste of odol remains in the mouth for such a long time after the use of this preparation. By a series of very accurate experiments, Hefelmänn showed that in the presence of the pancreas, the saliva, the mucous membrane of the mouth, and of putrefactive germs, the antiseptic substance found in odol is decomposed into phenol and salicylic acid, provided the temperature of normal blood is maintained. At ordinary temperature, however, this decomposition does not take place, and this change is also absent in the presence of egg albumin and of blood serum. Hence it seems that the antiseptic principle of odol becomes decomposed only in the presence of living cells. It is specially to be noted that, when the decomposition occurs in the presence of saliva, the reaction of the latter remains alkaline, notwithstanding the comparatively large quantity of salicylic acid liberated. Further investigation convinced Hefelmänn that the salicylic acid resulting from the decomposition of the antiseptic principle of odol never exists free in the mouth, but always combines with the albumin of the mucous membrane.

These interesting experiments of Hefelmänn I have been able to confirm, in part, in my own investigations.

All the above-cited facts tend to show that the antiseptic substance which forms the active principle of odol has no unfavorable effects.

In order to express in figures the relative antiseptic value of the remedies enumerated in the first table, I added the percentage of bacteria that is found in the mouth a quarter of an hour after using the solutions, and that found after three hours, and calcu-

lated the average from the sum thus obtained. By this method I found that the percentage of bacteria in an uncleaned mouth, which is taken as 100, was lowered as follows by the various preparations examined:

TABLE II. AVERAGE DECREASE IN THE NUMBER OF GERMS.

(1)	10 per cent.	Miller's solution of benzoic acid.....	to 13 per cent.	
(2)	1:300	" solution of salicylic acid.....	" 19	"
(3)	5	" sol. bichlorid-benzoic acid, Miller's...	" 25	"
(4)	10	" solution of odol.....	" 37	"
(5)	10	" thymol-benzoic acid solution, Miller's	" 39	"
(6)	5	" solution of odol.....	" 52	"
(7)	10	" solution krameria-benzoic acid, Miller's	" 53	"
(8)	½	" solution of formalin.....	" 77	"
(9)	10	" solution of Botot's water.....	" 81	"
(10)	5	" solution of potassium chlorate.....	" 82	"
(11)	5	" thymol-benzoic acid solution, Miller's	" 92	"
(12)	5	" solution of Botot's water.....	" 93	"
(13)	5	" solution of Pierre's water.....	" 99	"
(14)	5	" sol. benzoic acid, Miller's (increase)	" 110	"

Only the first seven of these solutions can be classed as efficient. Miller's solution of bichlorid and benzoic acid stands first, but this remedy, as Miller himself acknowledges, is not suited to daily use as a mouthwash, on account of the well known poisonous properties of mercuric bichlorid, and its strong acid reaction and unpleasant taste.

Salicylic acid exercises a decalcifying action upon the dental substance, and can only be used in special cases. If an exceptionally strong antiseptic is desired, with the view of destroying the germs in the mouth, salicylic acid is certainly preferable to bichlorid, on account of the poisonous effect of the latter.

Hence the only substances that may be said to be suitable for use as daily mouthwashes, and at the same time possess sufficiently strong antiseptic properties, are Miller's 10 per cent. solutions of thymol-benzoic acid and of krameria-benzoic acid, and the 10 per cent. and 5 per cent. solutions of odol. Miller's solutions show a destructive effect upon the teeth, which, though mild, is demonstrable without question. On the other hand, odol is perfectly harmless both to the teeth and to the mucous membrane of the mouth. The preparations of Miller, in 10 per cent. solutions, have a very disagreeable taste, which, after prolonged use, becomes literally insupportable. Odol in 5 per cent. strength has a very pleasant taste, but in 10 per cent.

strength tastes too strongly of the volatile oils that enter into its composition.

To sum up, I can say that if we consider the properties of each of the remedies examined, that together with a thorough mechanical cleansing of the teeth, odol in the strength of about 50 drops to a glass of water constitutes the most agreeable and efficient mouthwash. On the other hand, formalin has proved to be entirely unsuitable for this purpose.

(1) *Miller*, Lehrbuch der conservativen Zahnheilkunde, 1898.

(2) *Gerlach*, Journal für Zahnheilkunde, 1898, No. 26.

(3) *Hefelmann*, Deutsche Medizinal-Zeitung, 1894, No. 47.

(4) *Van Huerck*, Journal de Pharmacie d'Anvers, March, 1894.

ABSTRACTS AND SELECTIONS.

THE MEDICAL SCHOOL OF THE FUTURE.*

By H. P. Bowditch, M.D.

Let us consider in what way the medical school of the immediate future is likely to differ from that of the present time with regard to the subject-matter of instruction. The most striking phenomenon presenting itself to the educator of to-day is the recent enormous widening of the educational horizon. "The immense deepening and widening of human knowledge in the nineteenth century and the increasing sense of the sanctity of the individual's gifts and will-power" are the fundamental facts which underlie the development of the elective system, but it is important to bear in mind that, as Professor Smith observes, this development has been "due not so much to increase of knowledge—for not all new knowledge is straightway fit for educational purposes—but rather to the conversion of new fields of knowledge to the uses of education."

A discussion of the elective system of education with its attendant advantages and dangers would require far more time than I have at my disposal, and I must content myself with pointing out the possibility that, in this period of transition, the educational pendulum may have swung to an extreme position and

*Extract from the Presidential address at the meeting of the American Congress of Physicians and Surgeons, held at Washington, D. C., May, 1900.

that too much attention has been given to the accidental differences of pupils, while the essential similarity of their natures has been lost sight of. In discussions on individuality as a basis for the elective system one sometimes hears the statement (attributed to Leibnitz) that no two leaves of the same tree are alike. This dissimilarity, however, does not prevent them from all elaborating the same sap, and it is, moreover, always associated with sufficient essential similarity to enable any one, with even the most elementary knowledge of trees, to distinguish the leaves of an oak from those of a maple.

While admitting that some of the extreme positions now maintained by the advocates of the elective system may in the future have to be abandoned, no one can doubt the wisdom of adapting the education to the powers of the mind to be educated and of allowing, in the case of advanced students, the choice of the individual to be a determining factor in the selection of studies. Let us, therefore, inquire to what extent the elective system may properly find a place in the curriculum of our medical schools. That it forms an essential feature of our post-graduate schools of medicine scarcely needs to be mentioned, for these schools have been organized for the express purpose of enabling graduates in medicine to select such subjects for study as may seem to them desirable, and to acquire more advanced knowledge than was possible in the undergraduate course. Moreover, in some of our larger schools, since the establishment of the compulsory four years' course, a portion of the instruction of the fourth year has been given in elective courses in various specialties. The elective system in medicine is, therefore, not altogether a novelty, and the question now before us is whether it may be profitably extended to the earlier years of the course.

In his remarks at the dinner of the Harvard Medical Alumni Association in 1895, President Eliot used the following language: "There ought to be in the Harvard Medical School an extended instruction far beyond the limits of any one student's capacity. This involves, of course, some optional or elective system within the school itself, whereby the individual student should take what is, for him, the best four years' worth, the faculty supplying teaching which it might take a single student eight, twelve or twenty years to pursue."

One year ago last December, in an address which I had the

honor to deliver in New York before the American Society of Naturalists, I gave the reasons which seemed to me conclusive in favor of this extension of the elective system, and, with your permission, I will take the liberty of presenting as briefly as possible the views there set forth.

In the first place, it may be assumed that a medical school of the first rank should be an institution in which the most advanced instruction in all departments of medicine can be obtained, and on this assumption it is, of course, impossible to arrange a course of study that every student must follow in all its details, for, in the time which may properly be devoted to a course of professional study, it is quite impossible for even the most intelligent students to assimilate all the varied information which such a school may be reasonably expected to impart.

It seems, therefore, to be evident that in arranging a course of medical study a distinction must be made between those subjects which it is essential that every student should know, and those subjects which it is desirable that certain students should know; that is, between those things of which no man who calls himself a physician can afford to be ignorant, and those which are important for certain physicians, but not for all; in other words, provision must be made both for required and for elective studies. The task of drawing the line between the essential and the desirable in medical education will require the greatest possible good judgment and readiness for mutual concession on the part of those engaged in the work, but there is no reason to fear that the difficulties will be found insuperable when the importance of the change has once been recognized.

Any one who is familiar with the existing methods of medical instruction is aware that in nearly every department many things are taught which are subsequently found to be of use to only a fraction of those receiving the instruction. Thus, the surgical anatomy of hernia is taught to men who will subsequently devote themselves to dermatology, future obstetricians are required to master the details of physiological optics, and the microscopical anatomy of muscles forms a part of the instruction of men destined to a career as alienists. Now, no one can doubt the propriety of including instruction on all these subjects in the curriculum of a medical school, but it may be fairly questioned whether every student should be forced to take instruction in them all.

To better indicate the nature of the reform which I am advocating, allow me to describe a possible arrangement of a course of study in the department of physiology, with which I am, of course, more familiar than with any other. An experienced lecturer will probably find it possible to condense into a course of about forty or fifty lectures all the most important facts of physiology with which every educated physician must necessarily be familiar. Attendance upon these lectures, combined with suitable courses of text-book instruction and laboratory work, would suffice to guard against gross ignorance of physiological principles. In addition to this work, all of which should be required, short courses, of not more than eight or ten lectures each, should be provided, giving advanced instruction in such subjects as the physiology of the special senses, cerebral localization, nerve-muscle physiology, the internal secretion of glands, the physiology of the heart, circulation and respiration, the digestive secretions, the reproductive organs, etc. These courses should be elective in the sense that no student should be required to take them all. Each student might, however, very properly be required to choose a certain number of courses, which, when once chosen, become, for the student choosing them, required courses leading to examination. There is, in my opinion, no doubt that an arrangement of instruction similar to that here suggested for physiology could be advantageously adopted in the departments of anatomy, histology, bacteriology, medical chemistry, pathology, surgery, and in the courses of instruction in the various special diseases, such as dermatology, ophthalmology, etc.

In the existing state of medical education the introduction of the elective system in some form or other seems to be an essential condition to any further important advance, for the curriculum of most of our schools is already so crowded that no considerable amount of instruction can possibly be added. Various arguments may, of course, be advanced in opposition to the change. It may perhaps be urged that no choice of studies can be made without determining to some extent the direction in which the work of a future practitioner is to be specialized, and that such specialization cannot be properly and safely permitted until the student has completed his medical studies. To this it may be answered that, whatever may be the dangers of too early specialization, the dangers of crowding the medical course with

instruction of which many students do not feel the need, and of thus encouraging perfunctory and superficial work, are certainly no less serious. It is, moreover, a matter of common observation among teachers in medical schools that a certain number of students very early make up their minds either that they will become surgeons, obstetricians, or specialists of some sort, or, on the other hand, that they have a strong aversion to certain branches of medicine and a determination never to practice them. For such students a prescribed curriculum necessarily involves great loss of time and energy.

If it be said that under this system the medical degree will cease to have the definite meaning now attached to it, and that it will be impossible to tell from his diploma in what way a physician has been educated, it may be replied that, although the degrees of A.B., A.M., Ph.D. and S.D. are affected with exactly this same uncertainty of signification, their value seems in no way diminished thereby. As long as the M.D. degree stands for a definite amount of serious work on medical subjects, we may be reasonably sure that those who hold it will be safe custodians of the health of the community in which they practice.

If it be urged that the elective system in medical education will lead to the production of a class of physicians who, owing to the early specialization of their work, will be inclined to overrate the importance of their specialty, and to see in every disease an opportunity for the display of their special skill, it may be pointed out that this result is apt to be due not so much to early as to imperfect instruction in the work of a specialist, and that since the elective system tends to encourage thoroughness in special instruction, the evil may be expected to diminish rather than to increase.

Methods of Instruction.—Having thus recognized the necessity of remodeling our conception of the subject-matter to be taught and noted the importance of distinguishing between the essential and the desirable in medical education, we must next consider by what methods the needed information may be best imparted and the necessary training secured. There is, perhaps, no way in which modern educational methods differ more from those of an earlier period than in the greater prominence given to object-lessons. Beginning with the kindergarten, the child is trained to cultivate his power to observe accurately and to manipulate skilfully, and through his school and college life

prominence is given to the objective side of education to an extent which would have seemed to the book-trained pedagogues of a former generation but ill-adapted to provide the well-stored mind which it was thought to be the principal object of education to secure. In the professional schools also the reaction against purely didactic methods has been strongly felt. Even in those professional pursuits to which the object method might seem at first sight least applicable, in the study of the law the so-called "case method" of instruction has been found to exert a vivifying influence.

In medical education in this country it is interesting to note that, in the very beginning, the instruction was more objective in its character than at a somewhat later period. In those early days it was in the office of his preceptor and at the bedside, as his actual assistant, that the embryo physician was initiated into the mysteries of his calling. Then followed a period when it was clearly perceived that the trained mind is necessary to interpret the data of observation and that mental training is essential to correct observing. Hence, schools were established to provide this training by means of systematic didactic lectures covering all the departments of medicine and usually extending over not more than four months. These schools were intended at first merely to supplement the work of the preceptors, but in process of time the relative importance of these two educational agencies was reversed and the work of the preceptors became supplementary to that of the schools. The function of the preceptors finally became so subordinate that their names no longer appeared in the catalogues, although this did not always indicate that they had ceased to afford students opportunities for practical clinical work.

The schools, once established, grew chiefly by an increase in the length and number of the lecture courses as new and important subjects forced themselves on the attention of the medical profession. Against this undue extension of purely didactic methods of instruction a reaction has now set in, and during the last ten or fifteen years loud voices have been raised in advocacy of more objective methods than those at present in use. It is not, however, the reinstatement of the preceptor that is urged, but rather the greater use of laboratory methods in the strictly scientific departments of medical instruction and their application, as far as possible, at the bedside of the patient. A

discussion of the relative advantages of the laboratory, the lecture and the text-book as methods of medical education cannot be undertaken without a recognition of the fact that this education has a double object. In the first place, the faculties of the student are to be so trained that he may observe carefully, reason correctly, study effectively and judge wisely; in other words, he is to be "trained for power," to use President Eliot's phrase. In the second place, there must be imparted to him a sufficiently large fraction of the acquired medical knowledge of the time to make him a safe custodian of the health of the community. Which of these two objects is the more important is a question which we need not now discuss, but even if we grant all that is claimed by the advocates of training for power, it is evident that the constantly increasing range of subjects with regard to which an educated physician must be informed will greatly reduce the time which, in the curriculum of a medical school, may properly be devoted to courses of instruction not intended to impart direct and valuable information. In fact, "training for power" should be largely a function of the academic department of a university, and when undertaken in a professional school, should be so directed as to impart at the same time the greatest possible amount of useful information.

Let us now consider how far the didactic and the laboratory methods of instruction are each adapted to secure these two objects of medical education. For the purpose of training for power no one can doubt the value of the laboratory method. Contact with the phenomena themselves, and not with descriptions of them, has a stimulating effect on the mind of a student, the importance of which it is difficult to exaggerate; but it does not follow from this that the lecture, the recitation and the text-book are worthless as methods of training. It is here that some of the advocates of laboratory methods have committed what appears to me a serious error such as is too apt to characterize all reform movements, the error, namely, of assuming that, because one proposition is true, another proposition, not logically inconsistent with it, must be untrue. "These gentlemen," as Professor Howell has expressed it, "having become possessed of the golden truth that the best knowledge is that which comes from personal experience, seem disposed to deny all value to knowledge communicated from the experience of others." We are told, for instance, by Dr. Burr, that the didactic lecture

"dates from the time when printing was unknown and manuscripts were rare and almost priceless and the only means of communicating knowledge was by word of mouth. To-day it is in large part an anachronism, because the time devoted to it could be put to better uses."

In his able address at the last Yale University Medical Commencement my colleague, Dr. C. S. Minot, expressed himself as follows: "The very best that can be said of a lecture or a book is that it describes well the knowledge which some one possesses. There is no knowledge in books. * * * A book or a lecture can serve only to assist a man to acquire knowledge with lessened loss of time. Knowledge lives in the laboratory; when it is dead we bury it decently in a book. * * * A lecture is a spoken book." I venture to believe that Professor Minot's students will hardly agree with this estimate of the lifeless character of either his written or his spoken instruction.

In place of these rather disparaging views of the importance of a didactic lecture, I am inclined to accept Dr. Weir Mitchell's opinion, that "the best lecturing does not so much think for you as invite you to think along suggested lines of inquiry." If, as has been claimed, "the passive attitude of listening does not demand of the students intelligent thought," the fault must lie with the lecturer, and not with the method of instruction. In every department of medicine advanced instruction necessarily deals with subjects which lie within what Foster has called the "penumbra" of solid scientific acquisition, and about which conflicting views are therefore certain to be held. It is in inviting thought with regard to the evidence on which these views rest that the experienced lecturer has his best opportunity to train the minds of his hearers. Other opportunities are also afforded by the historical presentation of subjects about which differences of opinion no longer exist, for there are few things more instructive than to follow up, step by step, the lines by which our knowledge has advanced, noting the marks which distinguish the paths which have been trodden successfully from those which have turned out to be "No Thoroughfare." Even better opportunities for mental training than those which the lecture room presents are afforded by the recitation, for here the minds of the teacher and the pupil are brought most closely into contact, the pupil's difficulties are appreciated by the instructor, and the point of view of the teacher can be learned by

the pupil. It has always seemed to me that no higher enjoyment falls to the lot of the teacher than that which he experiences when, by a series of carefully considered questions, he leads his pupil onward from the known to the unknown, and notes the gleam of intelligence which illumines his countenance as a subject, previously obscure, becomes clear, as a result of his own mental operations guided by his teacher's skilful questions. It thus appears that no monopoly of opportunities for mental training can be claimed for the laboratory method of instruction.

Distribution of Work.—The next question which I shall ask you to consider is that of the proper distribution of the work of a medical student. Thirty years ago no such question seems to have presented itself to the minds of instructors in medicine. The medical faculties of that time contented themselves with providing, each year, courses of lectures covering all the departments of medicine, as they were then understood, and every student was expected to attend as many of the lectures as he saw fit. Between 1870 and 1880 the fact that there is a natural sequence in medical studies became generally recognized, and graded courses of instruction were established in the principal medical schools of the country. The grading was not, however, carried sufficiently far. Thus instruction in both anatomy and physiology was generally given simultaneously through the whole of the first year, though the knowledge of structure should logically precede a study of function.

The time seems now to have come for taking another step in grading medical instruction, and during the academic year now drawing to a close instruction in the Harvard Medical School has been given in accordance with a plan of which the guiding principles are concentration of work and sequence of subjects. Thus in the first half of the first year the students devote themselves exclusively to the study of anatomy, including histology and embryology. In the second half year they are occupied with physiology, including physiological chemistry, while in the first half of the second year pathology, including bacteriology, engages their attention. It is perhaps too early to pass a final judgment upon the value of the method, but thus far both teachers and students seem to regard it as a success. The result seems to have justified the opinion of its advocates that the work of the student would be made "easier by concen-

trating his thoughts upon one subject, instead of dissipating his attention upon many subjects." Nor have its opponents found any justification for their fears that the average brain would become fatigued and unreceptive by too close application to one subject, for the sciences of anatomy, physiology and pathology "are not narrow hedged-in areas, but rather broad and diversified domains composed of many contiguous fields," in passing from one to another of which the student may rest his mind without interrupting the continuity of effort essential to effective work.

An obvious objection to this method of concentrating instruction is the large amount of work which it imposes upon the instructors. There is no doubt that the labor of teaching every day in the week may task the powers of even the most enthusiastic instructor, but it has been found that the laboratory work which has occupied from two to three hours every forenoon has been conducted with much less fatigue than was anticipated. In fact, students, when supplied with printed directions for work and with the necessary apparatus, need remarkably little supervision. In the physiological laboratory it was found that one instructor could readily supervise the work of fifteen pairs of students, and the experience in the anatomical and pathological departments was of a similar sort.

Examinations.—Closely connected with the question of method of instruction and of distribution of work is the subject of examinations. With regard to these tests of our educational methods opinions vary even more widely than with regard to the methods themselves. There is only one point, as Professor Exner has remarked, on which teachers are practically united, and that is "that an examination is a necessary evil." Every examiner knows only too well that an examination is but a very imperfect test of knowledge, but few are ready with any suggestion of a substitute. Much of the confusion which prevails in the discussion of this subject would be removed if the objects to be secured by an examination were more clearly apprehended. Professor Exner points out that examinations may be broadly divided into two classes, viz., the *Controlprüfung*, to test the faithfulness with which the student has performed his daily tasks, and the *Reifeprüfung*, to determine the amount of his permanently acquired knowledge of medical subjects.

The examination, which, at the end of the year, covers the

whole ground of the previous twelve months' instruction, and which is so common in our schools, belongs to neither of these two classes and is really a concession to a very natural wish of the student to get the examination "out of the way" while the subject is still fresh in their minds. Having little justification, from an educational point of view, we may hope to see it abandoned when the extension of laboratory methods provides in the notebook and graphic records of each student the evidence of his daily work, and thus either renders a further examination unnecessary or prepares the way for a final test of his fitness to receive his diploma of M.D. Whether the written or the oral examination affords the better method of applying this test is a question about which opinions vary. The fact that some persons can write more readily than talk, while others can talk more readily than they can write, seems to be a reason for providing a mixed method of examination in which each individual may have an opportunity of appearing to the best advantage.

Conclusions.—If the views here presented are well founded we may expect that a medical school of the first rank will, in the immediate future, be organized and administered somewhat as follows:

I. It will be connected with a university, but will be so far independent of university control that the faculty will practically decide all questions relating to methods of instruction and the personnel of the teaching body.

II. It will offer advanced instruction in every department of medicine, and will therefore necessarily adopt the elective system of some sort, since the amount of instruction provided will be far more than any one student can follow.

III. The laboratory method of instruction will be greatly extended, and students will be trained to get their knowledge, as far as possible, by the direct study of nature, but the didactic lecture, though reduced in importance, will not be displaced from its position as an educational agency.

IV. The work of the students will probably be so arranged that their attention will be concentrated upon one principal subject at a time, and these subjects will follow each other in a natural order.

V. Examinations will be so conducted as to afford a test of both the faithfulness with which a student performs his daily

work and of his permanent acquisition of medical knowledge fitting him to practice his profession.

If I have clothed these conclusions in the language of prophecy it is because the title of my discourse has laid this necessity upon me. In forecasting the immediate future, I have borne in mind the history of the immediate past, and if I have failed to read aright the indications of the lines on which our medical schools are to advance, it must be remembered that the development of a biological science and of its dependent arts not infrequently takes place in totally unexpected directions, thus introducing into the path of educational progress perturbations which may well defy prediction.

QUININE PLANTATIONS.

• “The quinine plantations, or quinales as they are called, which have been started in Bolivia by the Germans, are usually found on rough and broken mountain sides, and at altitudes of three thousand or four thousand feet above the sea. The trees will grow at an altitude of eight thousand feet, but flourish best at an elevation of about four thousand feet, for they require a great deal of sun, rain and wind to reach perfection,” writes William E. Curtis in the *Chicago Record*. “Most of the groves have been raised from the seed, which is gathered in the early summer months, and planted in hot houses. When the plants are about six inches high they are transplanted upon the hillsides, which have been cleared of underbrush and plowed up beforehand so that the young roots can secure the benefit of all the moisture and plant food in the soil, and the heat of the sun. For shelter they are partially covered with twigs, straw or other light stuff, which also serves to keep the heat and moisture in the ground. After about two years this shelter is raked off; the plants are carefully inspected, and those which are not promising are replaced by new ones. The ground around them is kept clear of weeds and the young trees are carefully trimmed twice a year. In five or six years the tree will have reached a height of twelve or fourteen feet, and its trunk will be straight and slender, with a diameter of about six inches. It resembles the orange tree in size and shape and peculiar gloss of leaves. Two or three times a year three or four slips of bark about two inches wide are cut from the

trunk, and thrown upon a paved yard to dry. As the moisture evaporates they curl up like cinnamon. Within a year or so, nature replaces the bark that has been stripped off, and the tree is stripped again in other places. As it grows older smaller strips can be taken from the stronger branches, and a mature tree will produce an annual average of about four pounds of bark. The bark dries in a few days, and is packed for shipment in rawhide bales."

ANTISEPSIS OF THE MOUTH.

In experiments by C. Roese on oral antiseptics a large number of mouth washes were tested on subjects who, during the forty-eight hours of the tests, neither ate, drank, hawked, coughed nor talked for any length of time. Each substance was tested at least eight times, some twenty-four. Roese found that tepid physiologic salt solution has considerable bactericidal effect, and recommends it to the sick and poor as an inexpensive and effective antiseptic for rinsing the mouth. Cold substances induce a venous congestion which favors the development of bacteria. He found that the number of bacteria was very much diminished by a meal; the broader the face and consequently the more vigorous the muscles of mastication, the greater the number of bacteria dislodged and carried down into the stomach with the food. Continuous talking also diminished the number of bacteria, and certain articles of food, gooseberries, peaches, cider, have a considerable bactericidal effect. Miller's mouth wash is the most effective—with the exception of *odol*—but it must be fresh; otherwise it proves a good culture-medium. Formula: acid benzoic, 3.0; tint. *ratanhæ*, 15.0; alcohol, 100.0; and *ol. menth. pip.* 0.75. One teaspoonful in a wineglass of water for rinsing the mouth. Roese mentions that he cures an inflamed gum by dipping his tooth-brush in 60 per cent. alcohol, and thinks that alcohol will yet assume a more prominent place in antiseptics on account of the great dilatation of the small terminal arteries and capillaries which it induces. The tabulated tests show that *odol*, in either 5 or 10 per cent. solution, is superior to all other substances which are not directly injurious for either teeth or gums, on account of its strong bactericidal properties, its harmlessness and its pleasant taste. It is a brown oily substance with great surface attraction, and spreads out evenly over the lining of the mouth, where it breaks up into salicylic acid and phenol, the same as *salol* in the intestines. It is therefore closely allied to *salol*, and yet is physiologically entirely different.

Jour. Amer. Med. Asso.

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THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

EDITORIAL.

AN ELECTIVE MEDICAL COURSE.

The programme published in the May issue of the BRIEF of the "Symposium on Dental Education," which forms a prominent feature of the proceedings of the Section on Stomatology of the American Medical Association at the annual meeting to be held at Atlantic City from the 5th to the 8th of the present month, is not only indicative of a continued and growing interest in a much discussed subject, but is significant also of a deepening appreciation of the fact that, as an outgrowth of the general educational movement in the dental profession, the question of its relationship as a profession to general medicine is becoming increasingly important.

While the treatment of diseases of the teeth and associated parts logically, as well as historically, must be accepted as a branch of general medicine, practically during the century just closed dentistry has been a branch whose growth and development have to a great degree been independent of the parent stem.

That in view of conditions rapidly becoming dominant the closer union, which of late years has been effected, will, in the not remote future, become still more close can hardly be doubted by those observant of the trend of events, and mindful of the forces which are exerting upon them a controlling influence. In view of this fact the paper of Professor Bowditch, entitled "The Medical School of the Future," reproduced in part in our

present issue, is both timely and suggestive. Its most salient feature is perhaps the following statement:

Any one who is familiar with the existing methods of medical instruction is aware that in nearly every department many things are taught which are subsequently found to be of use to only a fraction of those receiving the instruction. Thus the surgical anatomy of hernia is taught to men who will subsequently devote themselves to dermatology, future obstetricians are required to master the details of physiological optics, and the microscopical anatomy of muscles forms a part of the instruction of men destined to a career as alienists. Now no one can doubt the propriety of including instruction on all these subjects in the curriculum of a medical school, but it may be fairly questioned whether every student should be forced to take instruction in them all.

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In the existing state of medical education the introduction of the elective system in some form or other seems to be an essential condition to any further important advance, for the curriculum of most of our schools is already so crowded that no considerable amount of instruction can possibly be added.

The fact that the more "advanced" courses in medicine are burdened to their limit, and must inevitably break down by their own weight if additional exactions are imposed, is very generally recognized. Even as it is, medical courses have too generally degenerated into a cram, the quiz-master having, to a great degree, supplanted the teacher, and the student being not so much trained in medical science as stuffed for medical examinations. The result is that the average student acquires more or less knowledge of everything, except practical skill and experience in healing the sick. Thus that which should be the chief and ruling purpose of a medical training must be attained by the medical graduate either by experimental private practice or, with less hazard to patients, by a term of hospital service, or a post-graduate course. Under such conditions a sifting out and rearrangement of studies, by which those essential for all shall be separated from those required only by the relatively few, may be regarded as a necessity of the near future.

The influence which such a movement would necessarily exert upon education in dentistry could not fail to be noteworthy,

as the subjects special to dental theory and practice would doubtless sooner or later be taught in one of the elective courses, and thus the mistake which forced dentistry to shape for itself a separate career be finally and fully rectified.

Primarily the mistaken refusal of schools of medicine to make provision for training in dentistry was due to that imperfect knowledge of the laws of health and disease as applied to the human organism which characterized the medical science of an earlier day. Dental caries and associated dental disorders were regarded as isolated phenomena, unimportant in themselves, with but slight relation to general systemic conditions and to be remedied chiefly, if not solely, by local medication or mechanical means. Hence dentistry became, to a considerable extent, the possession of those far more skilled in the mechanical repairing of the ravages of decay than in its prophylaxis or treatment.

This concentration of energy in one direction has, however, not been without its advantages, for it has resulted in such a degree of perfection in the methods, appliances and technique of dental practice as to leave little room for further improvement of a radical character.*

With this development of the mechanical aspect of dentistry has come, as the result of experience, a fuller knowledge of its limitations as a remedial agency, and an increased realization of the fact that a large per centage of dental lesions are directly or indirectly rather systemic than local in their origin, and that either the prophylaxis or cure of disorders due to systemic influences can only be made really and fully effective through treatment directed to causative systemic conditions.

The logical and inevitable deduction from these premises is that, in addition to his skill as a craftsman, the dentist should have both the knowledge required for the systemic treatment of pathological conditions of the teeth and associated parts, and the authority to utilize his knowledge when required for the welfare of his patient.

At present the right of the dentist to write the simplest prescription for other than local uses is far from being fully conceded; advice as to regimen is often regarded as unwarranted and, although the discoverers of anæsthesia, American dentists, not also graduates in medicine, administer anæsthetics subject to the grave disapprobation of many of the medical fraternity; while in most foreign countries dentists are interdicted from the administration of any general anæsthetic other than nitrous oxid gas.

Such limitations, however restrictive and offensive, cannot be considered entirely unreasonable in view of the very meagre and imperfect training in general pathology and therapeutics which a large percentage of dental graduates have received.

If "elevating the dignity" of the dental profession is ever to be more than a catch-phrase and an excuse for airing moth-eaten platitudes in dental meetings, it must be by advancing the status of its practitioners as healers of disease.

For this advance we must look to our dental schools, which should not only progressively increase their preliminary requirements up to a reasonable standard of educational fitness, but broaden their courses of instruction to a fuller measure of educational completeness.

With the establishment of the elective system by medical schools dentistry would doubtless take its place with ophthalmology, laryngology and other recognized specialties, and those desirous of pursuing its study under such auspices would be enabled to secure all the really essential attainments of the physician, combined with the special training of the dentist, and this without the useless sacrifice of years of time and the useless labor of mastering in all details subjects which, however interesting and valuable in themselves, have but the slightest, if any, relation to the special field of work upon which they desire to enter.

A change of methods so time-saving and labor-saving cannot much longer be deferred in an age too busy with present

duties to be punctilious about past traditions, and too determined upon the attainment of direct results by the most direct means to be hampered by the trammels of precedent however authoritative, or of custom however venerable.

THE ANNUAL MEETING OF THE NATIONAL DENTAL ASSOCIATION.

The annual meeting of this organization, to be held this year at Old Point Comfort on July 10th, and the three succeeding days, should not be neglected by those desirous of combining the profit to be derived from its proceedings with the pleasure of a sojourn at an attractive summer resort.

It may be well to remind those not familiar with this famous watering place that not only is it an historic spot, but it is located in a region rich in historic associations connected with the early colonial and revolutionary history of Virginia, as well as with some of the most important events of the civil war.

Among the points of interest may be mentioned Jamestown Island, the first English settlement in America, with its interesting ruins; Williamsburg, the site of William and Mary College, once the seat of learning and the resort of beauty and fashion, where also may be found Bruton Parish Church, holding many early colonial relics, among these the font used in the baptism of Pocahontas; Newport News, the creation of yesterday, already the site of a great ship-building industry, and destined soon to become a populous city; Hampton, with its famous industrial school for freedmen and Indians; Norfolk, Portsmouth, Gosport navy yard.

All these are easily accessible by rail or steamer; while directly at Old Point is Fortress Monroe, one of the most important of our seacoast defences, where guard-mount, dress parade, artillery practice and other events are always of interest to those who love the sound of martial music and the pomp and circumstance of military display.

Add to these attractions the fact that the hotels are excellent and the bathing good, that the waters of Hampton Roads abound with fish, and that upon its surface, usually placid during the summer months, sailing is a delight, and it is difficult to imagine a place where the means of enjoyment are more lavishly provided.

The full programme of proceedings for the daily sessions of the association has not yet been issued, but many interesting papers and clinics are promised, and the address by the President, Dr. B. Holly Smith, is sure to be worth listening to.

Take a few days off and go to Old Point Comfort.

BOOK NOTICES.

PROFESSIONAL EDUCATION IN THE UNITED STATES.

DENTISTRY.

Bulletin 9, February, 1900.

Prepared by Henry L. Taylor, Ph.D., under the direction of James Russell Parsons, Jr., M.A., Albany, University of the State of New York. Price 25 cents.

This volume of two hundred pages is an excellent compilation of data relative to the educational interests of dentistry. In addition to other valuable features it contains a full list of recognized dental colleges and departments in the United States, with concise information concerning their requirements and courses of instruction. It furnishes also a full analysis of the laws regulating the practice of dentistry in the several States and Territories of the Union.

The introductory chapter by James Russell Parsons, Jr., gives a brief synopsis of the history of dentistry from the earliest times, when it was practiced as a branch of surgery, to our own day. The causes which led to the formation of independent dental colleges and departments are briefly sketched, and their marvelously rapid growth is statistically stated. A short history of

the establishment of dental societies is also given, and the more important discoveries and inventions in dentistry are briefly outlined. The chapter closes with a synopsis of the present State regulations governing the right to engage in dental practice; the States and Territories being arranged in groups in accordance with the nature of their several requirements.

This compilation constitutes a convenient book of reference on the subjects of which it treats, and is valuable to all interested in educational questions. It may be obtained by remitting the price to the University of the State of New York, Albany, N. Y.

CORRESPONDENCE.

EDITOR DENTAL BRIEF:—The following letter and question slip I have sent to about three hundred dentists throughout the United States for the purpose of investigating the value of local anæsthesia about the mouth:

PHILADELPHIA, May 10th, 1900.

DEAR DOCTOR:—You can assist me materially in an investigation of the value of local anæsthetics in dentistry by answering the enclosed questions and returning same to me. There is such a marked diversity of opinion as to the propriety of applying local anæsthetics about the mouth, that any attempt to arrive at a statistical conclusion should meet not alone with favor but the hearty coöperation of the profession at large. Few dental institutions of learning advocate or teach the use of local anæsthetics, and still as each graduate enters upon his professional career, he is confronted by the important question: Is one justified in using local anæsthesia to alleviate the pain in dento-surgical operations?

Some men are firm advocates of the use of local anæsthetics, others strongly condemn them. If one man gets good results with the refrigerating spray or the cocain-charged syringe and the other does not, investigation may show that they are at variance in their methods of application.

When concerted opinion is absent in the profession, who is to decide in an individual case whether the post-operative swelling or sloughing is due to the traumatism, infection of the part or the toxic effect of the anæsthetic?

Many important points of this nature should be brought out in this investigation, and I ask that you kindly answer in full the questions mentioned. Space is provided upon the enclosed question slip for the report of any interesting cases bearing upon this subject.

Due credit will be given for all information.

Should you know of any other members of the profession whose experience would be of value, I would be indebted to you for their names and addresses.

I intend making a report of my investigation upon its completion, and desire to broaden the scope of this investigation. There are many men throughout the country whom I did not reach by letter, and whose experiences would be of much value in compiling this report. These I hope to reach through the dental journals. It would add greatly to the convenience in collating the data furnished if the questions are answered in rotation, with remarks and reports of interesting cases below. The name and address of each writer should be placed at the bottom of the sheet in right-hand corner, as in the following question slip:

QUESTION SLIP.

1. Do you employ local anæsthesia in your practice?
2. Kindly state what drugs or combination of drugs used for this purpose, and also your method of employing them.
3. Have you observed any untoward effects, either constitutional or local, from their use?
4. What means, if any, do you find necessary to prevent post-operative swelling and sloughing?

Remarks or reports of interesting cases.

Name.....

Address.....

All communications should be sent to my office, 1636 Walnut street, Philadelphia.

Morris I. Schamberg, D.D.S., M.D.

ANNOUNCEMENTS.

RECEPTION COMMITTEE APPOINTED BY THE MANAGEMENT OF THE INTERNATIONAL DENTAL CONGRESS AT PARIS.

The following named gentlemen constitute a reception committee for looking after the welfare of residents of the United States attending the Dental Congress: Dr. du Bonchet, President, 8 Boulevard des Capucines; Dr. Roussell, Secretary, 74 Boulevard Haussmann; Drs. Barrett, Bogue, Crane, Daboll, I. B. Davenport, W. Davenport, Fay, Gries, Holtz, Lie, Levett, Mung, Georgas Ryan, Jean Ryan, J. H. Spaulding, and Silva.

INTERNATIONAL DENTAL CONGRESS, PARIS,
FRANCE, AUGUST 8th, TO 14th, 1900.

The following papers will be read by the undermentioned gentlemen:

A. K. Fort, D.D.S., Atlanta, Ga. "The Influence of the Saliva on Bacterial Growth in the Mouth."

W. A. Price, D.D.S., Cleveland, Ohio. "The Science of Dental Radiography." (Illustrated.)

Richard Grady, M.D., D.D.S., Baltimore, Md. "Instructing Our Patients in the Care of the Mouth and Teeth."

R. R. Andrews, A.M., D.D.S., Cambridge, Mass. "The Development of the Enamel."

Geo. W. Cook, D.D.S., Chicago, Ill. "A Bacteriological Study of Pyorrhea Alveolaris."

C. S. Case, M.D., D.D.S., Chicago, Ill. "Important Principles in Dento-Facial Orthopedia."

R. H. Hofheinz, D.D.S., Rochester, N. Y. "Our Preliminary Educational Deficiencies."

E. H. Angle, M.D., D.D.S., St. Louis, Mo. "The American Type of Dento-Facial Deformity."

J. E. Hinkins, D.D.S., Chicago, Ill. "The Chemical Action of Cements in the Mouth."

I. N. Broomell, D.D.S., Philadelphia, Pa. "The Source of Nutrition of the Dental Pulp."

T. W. Brophy, M.D., D.D.S., LL. D., Chicago, Ill. "Surgical Treatment of Palatal Defects."

W. C. Barrett, M.D., D.D.S., Baltimore, Md. "Will Open the Discussion on Education."

Jonathan Taft, M.D., A.M., D.D.S., Cincinnati, Ohio. "Dental History."

A. W. Harlan, A.M., M.D., D.D.S., Chicago, Ill. "Pulp Digestion."

E. R. Warner, M.D., D.D.S., Denver, Colo. "Some Phases of Mummification."

It is expected that a few additions will be made to this list. The following gentlemen will give clinics:

CLINICS.

W. V. B. Ames, D.D.S., Chicago, Ill. "Some Possibilities of New Process Oxyphosphate of Copper."

Gordon White, D.D.S., Nashville, Tenn. "A Compound

Filling, Using in the Cavity Tin, Abbey's Non-Cohesive Gold and Nickold's Cohesive Gold.

Joseph Head, M.D., D.D.S., Philadelphia, Pa. "Porcelain Inlays."

Alfred Owre, M.D., D.D.S., Minneapolis, Minn. "Will Prepare a Step Cavity in an Incisor or Bicuspid and Fill Same with DeTrey's Crystal Mat. Gold." (Solila.)

Joseph W. Wassall, M.D., D.D.S., Chicago, Ill. "The Treatment of Septic Pulpless Teeth."

Hart J. Goslee, D.D.S., Chicago, Ill. "Porcelain Crowns and Bridge-work."

Robert Good, D.D.S., Chicago, Ill. "Porcelain Bridge-work."

V. H. Jackson, M.D., D.D.S., New York. "Jackson's System of Constructing Appliances for the Correction of Irregularities of the Teeth."

Levitt E. Custer, D.D.S., Dayton, Ohio. "The Electric Oven, and Electric Gold Annealer."

W. E. Griswold, D.D.S., Denver, Colo. "A Removable Crown for the Support of Saddle Plates or Bridges."

E. K. Wedelstaedt, D.D.S., St. Paul, Minn. "Gold Filling." Mesio-occlusal Cavity in Upper Front Molar, demonstrating Dr. C. V. Black's method of

- 1st. Cavity Preparation.
- 2d. Extension for Prevention.
- 3d. Occlusal Anchorage.
- 4th. The use of Annealed and Unannealed Gold.
- 5th. Method of Finishing (using Black's saw and finishing files).
- 6th. Proper Contact, also
- 7th. The Scientific Application of the Rubber-dam, and
- 8th. The Wedelstaedt System of Measurement, and its application to cavities in the human teeth.

Frank Holland, M.D., D.D.S., Atlanta, Ga. "Cohesive Gold Filling."

T. W. Brophy, M.D., D.D.S., LL.D., Chicago, Ill. "Surgical Treatment of Congenital Cleft Palate."

There are three or four additional clinicians to be heard from.

A. W. Harlan, Chairman.

W. E. Griswold, Secretary.

COLORADO STATE DENTAL ASSOCIATION.

The fourteenth annual meeting of the Colorado State Dental Association will be held in Boulder, Colorado, Tuesday, Wednesday and Thursday, June 12th, 13th and 14th, 1900. Indications point toward an interesting and successful meeting. It is earnestly desired as many as possible be in attendance; members of the profession are cordially invited.

Florence S. Green, Cor. Sec.

COLLEGE COMMENCEMENTS.

CHICAGO COLLEGE OF DENTAL SURGERY—DENTAL DEPARTMENT OF LAKE FOREST UNIVERSITY.

The eighteenth annual commencement took place at Central Music Hall, Chicago, on Thursday, May 3d, 1900, at 2.30 P. M.

LIST OF GRADUATES, CLASS OF 1900.

Alkire, Lewis Edgar	Dicus, William Owen	Juengling, Adolph Richard
Ardner, Andrew Joseph	Dundass, Edmund Grant	Kutch, Alfred Irie
Arnold, Lewis Earl	Everest, Bryant Henry	Kimball, Horton Fellows
Aten, Wilbur Orcutt	Fraker, Guy Cronice	Kuster, Samuel Williams
Bacon, Charles Grant	Funk, Roy Alonzo	Kerr, Ernest Everett
Bast, Magnus Leonard	Fortune, William George	Kibler, John Burton
Bast, Jr., John	Galbraith, Hugh	Land, William Harvey
Beeson, Orrin Leroy	Gaston, Thomas Ewing	Lawrance, Edward Patterson
Belscamper, Charles Lester	Garretson, Garrett James	Mahony, Daniel Patrick
Blatchford, Benjamin	Gibson, James Clark	Martin, Joseph Franklin
Bullard, John Albert	Gillies, William James	MacBoyle, Robert Ernest
Bock, Edwin Charles	Gilson, Samuel Wolford	McCallister, Harry Adney
Boyd, Earl Davis	Gostelow, Franklin Jesse	McEvoy, Richard David
Braley, Ernest Edward	Gostelow, William Robert	McLeish, John Niesbit
Brager, Joseph E.	Grove, Norman Clifford	Meagher, William Francis
Brown, Nickell Flint	Grove, George Nimes	Metcalf, Thomas Jefferson
Buckingham, Joseph T.	Guthrie, Nicholas Aitken	Mills, Thomas Mailen
Bingham, Jr., Joel Wallace	Grammer, Henry Andrew	Murphy, Walter Britt
Benedict, James Hudson	Goslee, William Arthur	McCandless, Charles B.
Bowyer, John Edgar	Gore, Frank Albert	Myers, Marion Lafayette
Campbell, Kenneth Charles	Hatch, Eugene Delmont	Mayer, Oscar Henry
Carrick, Clyde Cecil	Hansen, Harold Joseph	Nickson, Harry Edward
Chappell, John Boyd	Hammond, John Jay	Norman, Helge
Clark, Gustavus Alonzo	Hamilton, Ph. G., Edwin T.	Norris, Charles Chalmers
Coe, Lewis Clarke	Hallock, Emmet Corson	Norton, Ira Pickett
Collins, Francis Bradford	Hillemeier, Frank H.	Olcott, Harry Luman
Crawford, Edwin Henry	Hoesly, Ph. G., Henry	Olmsted, Lewis George
Crouch, Clyde Clippinger	Hoffman, Herman Hale	Parker, Jewett Claire
Crowe, Joseph Patrick	Hersh, William Henry	Parker, Frank DuBois
Campbell, Edwin James	Hoyt, Frank Alfred	Peterson, Arnold Arthur
Davis, Charles William	Helt, Fred. Henry	Pinney, Harry Bowman
Dennis, Calvin Ashford	Hodson, John W.	Proctor, Olin Southard
Donelan, Thomas Patrick	Jamieson, Henry Louis	Reese, George Walter
Dieckhoff, Emil Charles	Janett, John Andrew	Richardson, Frank Martin
Ducey, John Vincent	Johnson, Henry George	Reitz, Hugo Charles

Rigg, Ph. G., Perry Lawrence	Shurtleff, Chas. Henry	Van Hasselt, Arend L. J. C.
Rink, Henry Thomas	Sievers, Detlef	Vance, Mark Elliott
Ritchie, Sidney Willis	Slingluff, George Wesley	Wayland, Eugene Adelbert
Roth, Yanno Joseph	Smith, Charles George	Weatherwax, Walter Jay
Ruge, Harry William	Snyder, Charles M.	Welch, Adelbert Alonzo
Schleiter, Jr., John	Sturtz, Herman	Whiffen, John R.
Schloesser, Charles Dudley	Saulter, Bruce	Williams, George R. Eugene
Schmedeman, Otto Carl	Smith, B. A., Edward A.	Williams, Ph., G., Alvin I.
Schultz, Aloysius Francis	Schneider, George	Williamson, Oliver Leroy
Scott, Samuel Joseph	Tipler, Joseph Johnson	Willman, Jerome Edward
Senneff, Albert Clayton	Thompson, Dwight Lyman	Wolavka, Charles H. Nicholas
Sevier, Lawrence Roland	Towle, Samuel Downs	Wyneken, Theodore Charles
Sheehy, William Jay	Van DeGrift, Daniel Davis	Walsh, Harry Edwin
Schutt, Alexander	Van Verst, George Wyatt	Yule, Robert James Basil

NORTHWESTERN UNIVERSITY DENTAL SCHOOL.

The commencement exercises of Northwestern University Dental School took place at Central Music Hall, Chicago, on Wednesday afternoon, May 2d, 1900, at 2.30 o'clock.

LIST OF GRADUATES, CLASS OF 1900.

Ackers, Charles Franklin	Crooks, William Bennett	Hopf, George Arnold
Ahlenfeld, Theodore	Cushway, Bert Charles	Hollingsworth, Robt. Selwyn
Alderson, Thomas Edward	Cutter, Arthur Lucas	Hollingsworth, W. Gravad
Anderson, Alexander George	Darling, Andrew Delos	Humphrey, Wm. Thomas
Andrews, George Jay	Davidson, William Edward	Hunt, Frederick Miles
Barker, Oakley Moses	Dessaint, Lewis R.	Idler, Percy Benj. De Witt
Beck, Robert Wilfred	Dix, Alfred John	Jarvis, Frank Corden
Becker, Ottmar Albert	Drew, Rupert C.	Johnson, David Arthur
Bell, Alfred Millen	Dryden, Frederick Addison	Johnson, Oscar Theodore
Black, Arthur Davenport	Dueser, Fritz Henry	Johnson, Waldo Paschal
Blass, D. M.	Duffy, Bernard Alfred	Jones, John Clarence
Blane, Lee Edison	Eisenstaedt, Moses	Knaake, William Albert
Bloom, Frank	Fisk, Frederick Darling	Kratz, William Frederick
Bloomingdale, John Edwin	Flanagan, Lawson Holland	Keith, Robert Paul
Borovik, Borris Maurice	Formanack, George James	Kirkwood, Murray William
Bower, Willis Harrison	Frank, Harris Joseph	Kotler, Frank George
Brandt, William Frederick	Free, George Walter	Lambertson, Gertrude E.
Bronson, Archibald Franklin	Friezeke, Albert Julius	Larson, Henry Charles
Brooks, James Howard	Furman, Walter Orval	Lemmon, Franklin E.
Brooks, May Lorena	Gainforth, Silas Philo	Liggett, Richard Clayton
Brown, Boyd Crandall	Gietzen, Charles Henry	Matseher, John Ulrich
Brown, George Edward	Gillette, Clayton Omer	Mashek, Jarosh V.
Butler, Walter Pilling	Goldthorp, Francis Joseph	McCallin, Sidney Gilmore
Cannon, Ralph M.	Goodson, Lewis Jay	McCluskey, Floyd Mathew
Carney, Edward B.	Green, William Emory	McDermott, Peter George
Case, Rolland Theron	Grunn, Albert Parker	Macdonald, Alexander Rae
Chesebro, Miles Bennett	Hamilton, Gail Washburn	McDonnell, Elizabeth Jennie
Chilson, Henry Lee	Hammond, Charles Richard	McGregor, Gregor
Clark, Adelbert David	Harlan, Catherine Harriet	McIntosh, Robert Levi
Collie, Winfred Ross	Harlan, Thomas Stephen	Merritt, Earl
Converse, Charles Henry	Hastings, Mary Georgia	Mess, Frederick Julius
Cooley, Frank Dennis	Helmer, Madeline Matilda	Mielke, Frank Edward
Cornish, Marshall Sanford	Henning, Frank Paul	Miller, Oscar Hulburd
Costello, Daniel	Herz, Hugo	Methven, Houston French
Courtney, Walter George	Hirtzel, John	Moffatt, George Snow
Craver, Alva Sumner	Hirse Korn, Mary Anna	Moore, Norman Henry

Morton, Alice	Prettyman, Homer Lewis	Spessard, Edward William
Morton, Orla D.	Pritchett, Ross Allen	Stebbins, George Lyman
Mullen, Charles	Probst, John George	Stephens, Arthur Goode
Munn, Royal Bernard	Ransdell, Bennett Frank	Stevens, Bert Lewis
Neill, John Brawley	Read, Charles Herbert	Taylor, Elmer Duncan
Osher, Julius C.	Reedy, William Lincoln	Teeter, Mahlon Henry
Parks, George Alexander	Rehnstrom, Joseph Ernest	Thill, Henry Raymond
Park, William Smith	Robeson, Mary Gluesing	Thompson, John Cross
Patten, John Free	Robinson, Rome Holmes	Thompson, Edna Maude
Payne, Ira Abe	Rood, Albert Brown	Tims, Frank B.
Peak, Charles Albert	Ronna, Julius	Tomlin, Frank Byron
Pence, Henry Clay	Rusco, George Byron	True, Frank Dayton
Persons, Albert Dodge	Safford, Margaret Louisa	Wagoner, William Edgar
Peterson, Adolph	Sandbloom, John Nicholas	Walsh, Charles Heavysege
Peterson, Elmer Christian	Saxe, Jollie Noble	Warner, Burnet Dewey
Peterson, Edward J.	Schiff, David C.	Weaver, Frank Bradford
Peterson, Octave William	Schoenbrod, Maurice Solomon	Welsh, John Ellis
Philpot, Cory Allen	Seiler, Agnes	West, Jesse Alden
Pierce, Chase Hale	Serwe, Rudolph	Whitman, Edward Wallace
Pitts, John Frederick	Shewey, Charles Parsons	Wickey, J. Russel
Pollard, George Alfred	Slaven, James	Wilson, Charles William
Pooler, Lemuel Fiske	Smalley, Claude Everett	Wilson, Wm. Harlow
Potter, Albert Byron	Smith, Otto Bert	Wolf, William C.
Potter, Edgar Chauncey	Smith, Walter Clarence	Wolfrum, Richard
Powell, Edward Foster	Snyder, McGuire	Worsley, Willard Joseph

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The forty-fourth annual commencement of the Pennsylvania College of Dental Surgery took place at the Academy of Music, Philadelphia, on Wednesday evening, May 2d, 1900, at 8 o'clock.

LIST OF GRADUATES, CLASS OF 1900.

John Acron, Pennsylvania	Alfred B. Crowe, New York
Paul R. Albanesi, New Jersey	Froilan Rodrigues Cespedes, Cuba
Benj. F. Anderson, Ontario	Erle Conant Curtis, Quebec
Walker R. Arde, Canada	Henry Tallman Danforth, Oregon
James Warren Armstrong, Pennsylvania	Joseph M. Danneker, Pennsylvania
William Axford, Pennsylvania	Raymond Samuel De Long, Pennsylvania
Charles A. Bachman, Pennsylvania	Joseph Malcolm De Coursey, Maryland
Charles P. Bannan, Canada	Iglesias Ramon Gonzales, Cuba
George W. Barnhard, Jr., Pennsylvania	Augustus Caleb Foster, New Hampshire
Maria F. Bley-Lehmann, Austria	Hartley C. Foster, California
Loring Read Beardsley, Canada.	Edward E. Foust, Pennsylvania
David V. Besser, Pennsylvania	J. Dickson Frisbee, New York
Arthur Leslie Blackburn, Pennsylvania	Charles M. Gass, Pennsylvania
William A. Blackburn, Ohio	James Harvey Gladstone, New York
Walter Henry Bonsall, Jr., Pennsylvania	John Clarence Grant, Nova Scotia
George May Boone, Pennsylvania	Walter L. Grier, Delaware
Eugene Warren Boyer, Pennsylvania	William Leo Joseph Griffin, Pennsylvania
Coy McMillan Bugbee, Vermont	Frank Gilmour Gulliland, Massachusetts
Frank Melvin Caesar, Canada	Harry Isaac Haines, Pennsylvania
Sherman L. Carroll, Pennsylvania	Frank S. Hall, Delaware
Joseph Clarence Courtney, Pennsylvania	Warren Franklin Harter, Pennsylvania
Elvin Deyo Chipp, New York	Hugh M. Haslett, Pennsylvania
Glenn Earl Coe, New York	D. Montague Hawke, Pennsylvania
Walter S. Cole, Ontario	B. Franklin Henchey, New York
Harold Isaiah Cragin, New Jersey	Alejandro Herera Hijo, Santo Domingo
George E. Creasey, Pennsylvania	Wilson A. Henry, Pennsylvania
J. Hervey Crist, Pennsylvania	Frank Herman, Pennsylvania

H. Charles Hespe, New Jersey	Warren L. Zane, New Jersey
Charles H. S. Hicks, Massachusetts	William Joseph Hopkins, Pennsylvania
Mary Adele Quigley, Pennsylvania	Bertram Farthing Holden, New Jersey
Ernesto Saborio Quesada, Costa Rica	George M. Hutchison, Pennsylvania
Herbert Alden Rice, Pennsylvania	Alfred C. Hills, Massachusetts
Isador Revnes, Russia	A. Laidlaw Hyzer, New York
Delia Riggs, New York	Charles Innes, New York
Louis Rubman, New York	Edward W. Jarvis, Connecticut
John Doane Sutphen, Ohio	Paul Jones, Pennsylvania
G. Arthur Savage, Massachusetts	John Tomkins James, Pennsylvania
Orrin John Shaw, Maine	Cortland Elias Jennings, New York
J. Frank Shields, Pennsylvania	Harry Jerzy, Louisiana
Moses Silberman, Pennsylvania	Alfred Irving Keys, Pennsylvania
S. Raymond Rockwell Smith, New York	Jane Leslie Kift, Pennsylvania
Thos. H. Smith, Canada	Henry John Kraft, Pennsylvania
Munro C. Snyder, Pennsylvania	D. George Knecht, Pennsylvania
Jacob P. Snyder, Pennsylvania	Henri E. Langis, Quebec
Joseph G. Sokolowsky, Russia	John J. MacAleely, Pennsylvania
Everard Alvin Starkweather, Pennsylvania	Daniel McClarty, New York
Thomas Foster Stratford, Pennsylvania	John McAllister, Jr., Pennsylvania
Albert William Strecker, Pennsylvania	Herbert Alexander McCrea, Quebec
Daniel Bernard Suttle, Canada	Hiram Archibald McIntosh, Canada
Irving Edward Strong, Connecticut	Harold H. Messimer, Pennsylvania
Harold Sutton, New York	D. S. Miller, Pennsylvania
W. Armstrong Thome, Missouri	Robert W. Miller, Ohio
R. H. Till, Canada	Ellsworth James Mills, Pennsylvania
Arthur Burton Teakles, Canada	Ross Woodrow Mills, Canada
Arthur P. Thorp, England	Harry Leonce Mitchener, Nova Scotia
Victor Alonzo Vores, Connecticut	Bernard Mindling, New York
Constantine N. Veltakys, Greece	H. Ernest Morris, Nova Scotia
Lee Olan Waller, Delaware	Joseph Patrick Morrison, Pennsylvania
Richard J. Warrick, Jr., Pennsylvania	William C. Neumüller, Pennsylvania
Albert F. Wayne, Pennsylvania	Lawrence M. Nugent, Pennsylvania
Joseph Conwell Wiltbank, Delaware	Howard C. Nyce, Pennsylvania
Taylor T. Woollens, Pennsylvania	J. Gibson Petrie, New Jersey
Fred. L. Weed, Pennsylvania	

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

647557, Dental combination tool, Henry L. Cruttenden, Northfield, Minn.

647574, Dental dam holder, Samuel M. Myers, Cleburne, Texas.

647865, Artificial tooth, Alfred Page, assignor to Standard Dental Manufacturing Company, Philadelphia, Pa.

647736, Dental hand-piece, John D. Wilkens, assignor to Dental Protective Supply Company of the United States, Chicago, Ill.

648242, Sterilizer for dental or surgical instruments, James A. Cronkhite, Los Angeles, Cal.

648196, Dental matrix holder, Wm. P. Dickinson, Minneapolis, Minn., assignor to J. W. Ivory, Philadelphia, Pa.

647956, Dental tool, Nelson R. Ford, New York, N. Y.

- 648106, Dental engine, Harry W. Heinz, Pittsburg, Pa.
32617, Design, dental crown-driver, Clare S. Bradley, Beloit, Wis.
649234, Dental tool holder, Angelo Chiavaro, Catania, Sicily.
649336, Dental chair, Jesse W. McConnell, Cornelia, Ga.
649178, Top for tooth-powder receptacles, Frederick Richardson, Providence, R. I.

LABELS.

7509, "Listerlated Tooth Powder" for a Tooth Powder, Frederick B. Horton, Manchester, Conn.

7510, "Listerlated Tooth Powder" for a Tooth Powder, Frederick B. Horton, Manchester, Conn.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Questions and Answers.*

In the April number of the DENTAL BRIEF W. W. P. asks for a further report on Question 74 in the February issue. In reply I desire to say that my diagnosis was correct. The patient after leaving my office on October 15th, and having more or less fear of an operation, consulted his physician, who diagnosed the case as one of "cancer of the throat." The treatment was based upon this, and kept up for some time, but no relief followed. In a short time his condition became quite alarming, being very weak, with loss of flesh, and unable to sleep without the aid of an opiate. He could not eat solid food, and deglutition was accompanied with much pain. The local pain was constant, and much increased in severity. Gradually the pain extended to the muscles of the neck, and these became somewhat swollen. In this deplorable condition his physician advised him to go to Chicago to have the "cancer" removed, but the patient was unwilling to undertake the trip. Again I was consulted, and on November 1st, with the aid of a local anæsthetic, I removed the process

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

overlying an imperfectly formed first molar, which I left in place, with the result that immediate relief was obtained. The patient gained fifteen pounds in two weeks, and is now happy, while the physician is satisfied that he made a mistake.

S. Locke, Taos, N. M.

Question 90. Can you give me some information in regard to the various methods of securing a perfect joint between the end of a root and the base of an all-porcelain crown?

It is customary among careful operators to form a joint such as you refer to by exercising extreme care; first by having the extremity of the root a perfectly smooth, slightly concave surface, and by the aid of appropriate corundum stones and discs, grinding the base of the crown to a corresponding convexity. By repeatedly trying the crown in position an approximate joint may be obtained; but in most instances the "perfect joint" to which you refer will not materialize. Probably the best method to obtain a perfect joint in such cases is as follows. Select the proper crown, and grind it to an approximate adaptation. Then after thoroughly cleansing the ground surface of the crown, take a small amount of unbaked porcelain, and after mixing it to the consistency of a stiff paste, apply a fairly thick film to the joint on the crown. Next take a piece of platinum foil (60 gauge) sufficiently large to cover the end of the root and margins of the gum, place it over the end of the root, and force the pin of the crown through it, then gradually force the crown home. The unbaked porcelain should be of such a consistency, that it will readily take the form of the end of the root, and make a counterpart of the same. While the crown is firmly held in position, all surplus porcelain should be removed from the margin of the joint by a camel's-hair brush or tuft of cotton. The crown, unbaked porcelain, and platinum are then removed and placed in the furnace and sufficient heat applied to fuse the new porcelain. The platinum, which has been used to prevent contamination of the secretions with the unbaked porcelain, may then be stripped off, and you will have then formed a "perfect joint." It is best to use a low fusing body for this work.

Question 91. I experience a great deal of trouble from the checking of porcelain teeth while soldering. Can you or some of the readers of the DENTAL BRIEF tell me what to do to prevent this misfortune? I am very careful in the application of the heat, and in the cooling process.

W. L. Carroll.

While care in "heating up" and "cooling off" are essential factors in successful soldering when porcelain is involved, the method of temporary attachment of the backing to the porcelain also has much to do with the success of the work. The following precautions are necessary. The holes in the backing, which should be directly opposite the pins, must be countersunk on the side which comes in contact with the tooth, thus providing for any irregularity of porcelain about the pins, and allowing the backing to fit snugly against the body of porcelain.

Do not rivet the pins with the idea of forcing the backing against the tooth. Every time you do this, you do so at the expense of the attachment between the pins and the porcelain, and this undue strain is much increased when the heat is applied.

Have the backing to lie flat against the back of the tooth, and hold it temporarily in position by simply bending the pins sufficiently to keep it in contact. If you have been riveting your pins with the idea of increased strength, abandon the plan at once, as it weakens the tooth, and the porcelain is much more liable to crack under fire.

Question 92. Was the method of filling teeth with pieces of enamel from natural teeth ever practiced to any extent, and with what success was it attended?

Some years ago this method was for a time quite prevalent in France, having been brought to the notice of the profession by M. Heide, of Paris. It was claimed at that time, and with a certain degree of correctness, that a restoration could be made by grinding and fitting to a properly prepared cavity a plug of human enamel. The principal advantage in this process was found to be in the possibility of matching the color and contour, and the filling was in every way, with careful fitting, far superior to a simple plastic stopping. In this work, as well as in other cases in which the plug is ground to fit the parts, great difficulty was experienced in obtaining a proper adjustment, and for this reason probably, if for no other, the method was abandoned. It would also seem to be a question as to the utility of the substance employed, enamel.

Question 93. Can you furnish me with a good formula for base-plate wax, one that will work equally well in all seasons of the year?

A very good combination for this purpose is made from French chalk, gum kauri and stearin. In its preparation, first

melt the stearin and to this add a little at a time the gum kauri, which should previously be finely powdered. When this is dissolved, sift in the French chalk. The mass should be kept stirred until cool. The proportionate quantities are French chalk 14 parts, gum kauri 8 parts, stearin 4 parts.

Practical Points.*

Silver Nitrate in Pyorrhea Pockets.—Protect the gum by a preliminary application of tincture of iodine; if the nitrate of silver spreads it will form a painless iodid.

L. Van Orden, Western Dental Journal.

Celluloid Cement.—Mix 75 parts sulphuric ether with 25 parts alcohol in a well-corked bottle. After a few days add celluloid in small pieces to make an almost saturated solution. An excellent medium for uniting broken plaster models.

Ohio Dental Journal.

Repairing a Vulcanite Plate.—Instead of dissolving rubber in chloroform, use the ordinary bicycle cement. It gives perfect union between old and new rubber and simplifies the work of repairing very much.

W. T. Martin, Mississippi Dental Association, 1900.

Bridge Work and Rigg's Disease.—It is astonishing how firmly a few loose roots will support a bridge. A bridge constructed with special reference to the diseased roots tends to tighten them, and by holding the teeth rigid does much to eradicate the disease.

Howard T. Stewart, Mississippi Dental Association, 1900.

Pulp Capping.—Adjust rubber-dam, cleanse cavity thoroughly with warm water and 4 per cent. solution formalin, gently press over exposure small cutting iodoform gauze dipped in carbolic acid, flow over gauze paste of carbolic acid and aristol, seal up with non-irritating cement, and fill to suit case.

J. A. Richards.

To Prevent Porosity in Vulcanized Rubber.—When, for restoration purposes, an unusual amount of rubber is necessary, making the plate very thick in some places, fillings of old vulcanized rubber incorporated with the new when packing will prevent bubbles and sponginess in the interior of the thick portions.

W. R. Wright, Mississippi Dental Association, 1900.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Root-canal Cleansers.—The smooth jewelers' broaches can be brought very cheaply by the dozen. Numbers of these, wrapped each with a wisp of bibulous paper and kept always ready in the bracket drawer, will be found a great convenience.

Howard T. Stewart, Mississippi Dental Association, 1900.

To Repair Gold Crowns.—To repair crack or hole in gold crown burnish over same piece 22 or 24 karat gold sufficiently large to cover space, flow upon same 14 or 18 karat gold solder, place it upon crack or hole with soldered portion in contact with later, hold together with pliers, heat gently, and the patch will adhere readily to crown.

J. A. Richards.

Silver Nitrate for Arrest of Decay.—Advantages: Avoidance of painful, tedious, expensive operations; positive arrest of decay; conservation of larger amount of normal tissue. Disadvantages: Unsightly discoloration; liability of pulp irritation in deep cavities; irregularity and roughness of treated surfaces. The advantages greatly preponderate.

J. Morgan Howe, International Dental Journal.

The Chemical Arrest of Caries.—I have used nitrate of silver in my laboratory experiments, and find that it made the teeth much more resistant to artificial caries. Chlorid of antimony will do the same without discoloring the teeth, but I doubt if it is safe to use it in the mouth. Possibly such care might be taken by an operator of great skill that no harm would come from its use.

S. A. Hopkins, Bac. Lab. Harvard Med. School,

International Dental Journal.

Sulphuric Acid in Root-canal Cleansing.—In my opinion a 40 per cent. solution of commercial sulphuric acid in water will give the best results in the majority of cases. If stronger than 50 per cent. it has a tendency to disintegrate the cotton on which it is most convenient to introduce it. With a drop or two at the entrance of the canal I use a new broach, pumping it with the canal; this pares away all rough places, and disintegrates the inorganic constituents of the dentin with which it comes in contact.

J. R. Callahan, Indiana Dental Journal.

Broken Broach in Root-canal.—Make no effort to remove it by instrumentation, but at once fill the canal with sulphuric acid (50 per cent. solution), and fill the crown cavity or pulp chamber with sodium bicarbonate solution. As the alkali makes its way rootward successive explosions of carbonic acid gas will occur, and eventually gas will be formed beyond the broken broach, and the latter will come up into the crown cavity in a boiling, frothy mass of matter. This seldom fails.

J. R. Callahan, Indiana Dental Journal.

Pulp Capping.—There is an old rule laid down in one of the text-books, which, if followed, would save a lot of time and trouble, viz., cap only where the exposure is small, the dentin healthy, and the patient robust.

W. R. Birkett, Journal British Dental Association.

The Drill in Root-canals.—Wet dentin presents greater difficulties in the use of the Gates-Glidden drill than dry dentin. More failures in the use of the drill are attributable to wet dentin than to any other cause; more broken drills are due to wet dentin than to carelessness in handling.

J. R. Callahan, Indiana Dental Journal.

The Spittoon.—For those who are not provided with a fountain spittoon it will be found of great advantage to have two spittoons, to be exchanged, together with the instruments, used for each patient. The clean spittoon should be filled half full of water and a little permanganate of potash solution added when it is adjusted to the chair.

Howard T. Stewart, Mississippi Dental Association, 1900.

Why Recurrent Decay is Less Frequent with Gutta-percha Fillings.—(1) Gutta-percha fillings do not, as a rule, remain as long in position as gold or amalgam. (2) There is less shock transmitted, in mastication, to the walls of the cavity, with consequent disintegration at weak points in the margin, than with a perfectly rigid filling as amalgam or gold. (3) The effect of mastication is to keep a gutta-percha filling pressed tightly against the walls of the cavity, especially at the cervical wall, even obliterating the space produced by the recurrence of caries. The saving qualities of gutta-percha are, therefore, to be explained by its physical properties and not by any therapeutic virtues inherent in the material, nor by the action of galvanic action.

W. D. Miller, Dental Cosmos.

Alkaline Saliva.—Alkaline saliva seems to be an admitted aid to digestion, and if it can be induced to flow, and be kept alkaline, many stomach disorders will disappear. Vegetol will keep the saliva decidedly alkaline for some time after using. Its constituents are combined in the following proportions: Pulverized cereal, 75 per cent.; sodium borate, $17\frac{1}{2}$ per cent.; potassium chlorate, $7\frac{1}{2}$ per cent.; orris and menthol to flavor, and saccharine to sweeten. The cereal furnishes a mechanical cleanser for the teeth that will not abrade; the chemicals are antacid and antiseptic, and dissolve in the saliva, penetrating cavities, decay and counteracting the acids found in the mouth. Allowed to dissolve slowly in the mouth it is evident that its use at frequent intervals must tend to arrest decay, if it does not prevent it. It is a valuable adjunct in the treatment of pyorrhea alveolaris.

M. H. Fletcher, Dental Cosmos.

Root-canal Treatment.—When canals are so small that it is impossible to penetrate them with the finest bristle, I say let them alone. I agree with Prof. Watling that such canals are too small to give any trouble by infiltration of moisture.

Otto Marx, Ohio Dental Journal.

Solder for Aluminum Plate.—A French patent has issued for an aluminum solder, which consists of aluminum 95 parts, copper 2 parts, antimony, bismuth and zinc each 1 part. The aluminum must be protected by a flux, viz., a thin layer of phosphoric acid. *Ohio Dental Journal, Translation by H. Prinz.*

Care of the Teeth During Illness.—The teeth of invalids may be treated with silver nitrate with the result of inhibiting decay for several years. After the restoration of health I have filled the cavities, and have been able to note that no progress has occurred in the decay during the period of ill health.

J. Morgan Howe, International Dental Journal.

A Suggestion.—I believe the tooth brush, as it is too frequently used, is a source of infection, and that the teeth and gums are inoculated with disease from a foul brush. I believe that a holder which would carry a bit of sponge that could be removed and boiled, or replaced with new at each using, would be a great improvement over the continued use of an old tooth brush that is at least only rinsed and hung up, or kept in an open glass exposed to the dust and other impurities of the open air.

S. F. Carr, Mississippi Dental Association, 1900.

Pyorrhea Alveolaris Treatment.—Rinse the mouth with permanganate of potash solution, $\frac{1}{2}$ grain to ounce of water. Touch gum with carbolic acid, and inject 5 per cent. solution eucain. Then carry down quickly, from gum margin to alveolar process, a three edged, thin, flexible lancet, passing it around the tooth, severing gum entirely from tooth. With scraper or chisel scrape away the diseased pericementum, the external layer of the cementum and the diseased portion of the process. Success depends upon the thoroughness with which this is done, and it requires skill and practice. Wash out the pocket and wipe with cotton wrapped on a broach. Protect the mouth and carry to bottom of pocket sulphuric acid full strength. Wipe away oozing blood, and repeat, holding the acid in contact until the root surface is decalcified. Rinse mouth with soda solution, and prescribe as mouthwash permanganate of potash, $\frac{1}{4}$ grain to ounce of water used hourly till gum heals. A dose of Epsom salts daily for three weeks usually has good results. Also sarsaparilla and potassium iodid three time a day. Devitalize pulp in all cases presenting in advanced stages. In very advanced cases cut off crown just above gum level. After root treatment crown, and solder crowns together if several.

Howard T. Stewart, Mississippi Dental Association, 1900.

The Use of Clamps.—A right and left clamp (S. S. W., Nos. 83 and 94) for the molars, when used with napkins folded under them, will keep the teeth dry long enough for almost any operation, except a large gold filling. They leave both hands free, and for dressing root-canals and inserting plastic fillings they are invaluable.

Howard T. Stewart, Mississippi Dental Association, 1900.

Enlarging Root-canal.—This serves a three-fold purpose; it renders the introduction of dressings, medicaments and fillings an easy matter; it cuts away the zone of dentin in which disinfection of organic matter and consequent infection may have occurred; it opens the mouths of the tubules ready for any medication that may seem necessary.

J. R. Callahan, Indiana Dental Journal.

Rigg's Disease; Treatment of Molars.—To thoroughly scrape all the surfaces of the roots of molars is, in my opinion, rarely accomplished by ordinary methods. I find the only effective method is to devitalize, cut off the crown nearly to the bifurcation of the roots, and separate with a drill. This gives free access to the roots. When the gum heals, fit a separate cap to each root; solder the caps together and contour, fitting a shell crown over all. This will be found far better than a bridge of three teeth, which would be necessary were the tooth sacrificed. The fee should be in proportion to this valuation.

Howard T. Stewart, Mississippi Dental Association, 1900.

An Amalgam Containing 33 Per Cent. Gold.—I have carried out a number of experiments with gold and amalgam to get the effect of non-shrinkage and of retaining color, and I have found that any of the best grades of amalgam with sponge gold, as Steurer's, or the moss fibre gold, can be chemically admixed, producing the desired standard. Mix the amalgam with just enough mercury to bring it together—almost a powder, with no excess of mercury. Triturate the gold very thoroughly with the amalgam mass, and bring in contact with it dilute hydrochloric acid on a rubber pad. It will become a perfect paste, so that neither the gold nor the amalgam can be squeezed out. Wash, preferably with a stream of warm water, and dry on blotting paper. Then wash with pure alcohol, and dry again, and it is ready to insert in the tooth. If it crystallizes too soon use a warm burnisher. Polish at the next sitting. It will be the color of platinum, and there will be no discoloration of tooth structure.

D. Genese, Dental Cosmos.

*Errata. May issue, paper 307, line 6. "wire sections" should read "wire sutures."

Miscellany.

Alpha- and Beta-Eunol.—These two preparations, employed in the antiseptic treatment of wounds, are combinations of eucalyptol and alpha- and beta-naphthol, respectively. They are obtained by dissolving the naphthols in equal weight of eucalyptol. Alpha-eunol crystallizes well, and may be purified by solvents.

Pharm. Post.

An Odd Predicament.—A young man of twenty, recently brought forward to show cause why he should not serve his military service, produced his birth certificate, in which he was registered as a girl. It will take a special decision of the courts to allow him to become a "man," and so to enter the army, due to the mistake of the medical man who officiated at his birth.

Phila. Med. Journal.

Fasting in Acute Disease.—Man and animals are rendered more resistant to the action of bacteria and their toxins by abstaining from food within certain definite limits. Even milk, when not properly digested, undergoes such changes, due to fermentation and putrefaction, that the resistance to bacterial and toxin influence on the part of the tissues and their secretions is lessened. In pneumonia particularly, much benefit may be derived from fasting conjoined with gastro-intestinal disinfection.

Dominicis, Wiener Med. Presse.

Coryza, Apparently of Dental Origin.—E. P. Collett (*Journal of Ophthalmology, Otology and Laryngology*) records the case of a physician who suffered from persistent coryza, principally unilateral, for three or four weeks. Examination demonstrated no physical cause except some stigmata on the middle turbinated bone, associated with general vaso-motor dilatation of membrane. Neuralgic pain in temple, malar bone, and subsequently behind right ear, supervened. Local treatment proved of no avail. The writer found a periodontitis of the first maxillary premolar, which he extracted—no pus was evacuated. The neuralgia was cured next day and the coryza in three days.

Spasmodic Closure of Glottis from Ether.—W. J. McCardie, in *British Med. Journal*, January 20th, 1900, reports a case of spasmodic closure of the glottis from the inhalation of ether. The anæsthesia had been started with nitrous oxid, and under this anæsthetic the patient did very well, but after the ether, which was administered by Hewitt's apparatus, had been given a little while, the conjunctival reflex was almost abolished, the quiet breathing suddenly ceased. A finger was pushed into the pharynx, thence into the glottis, which was felt tightly closed. After the glottis had been opened by the finger, respiration was reëstablished, and the anæsthesia kept up with A. C. E. mixture.

Manganese Silver.—Copper, 67.25; manganese, 18.5; zinc, 13; aluminium, 1.25, are melted together. In appearance, the resulting alloy is equal to new silver, and it is more workable than that metal for casting. Its electrical resistance is four times greater than that of new silver. *Pharm. Cent.*

Ulcerative Stomatitis.—Kissel advises, in the *Progrès Médical*, to rinse the child's mouth every hour with a three per cent. boric acid solution and rub twice daily the entire buccal cavity, and particularly the gums and ulcerated parts of the mucous lining of the cheeks, with a plug of cotton wet with the same solution. Cod-liver oil is prescribed, and before commencing treatment, unsound teeth should be extracted. Under this treatment ulcerations are said to disappear in from six to ten days. In private practice, when such minute attention is not possible, the author, after extracting the teeth, as before, cures the ulcerations to the bottom, then with a finger enveloped in gauze he rubs iodoform powder into the ulcerated surfaces. The buccal cavity is cleansed twice daily with a tampon of cotton wet with boric acid solution, and the mouth is rinsed hourly with the same solution.

Trumpet Mouthpiece Above Soft Palate.—Dr. Frothingham reported a case in which a child had swallowed the porcelain mouthpiece of a toy trumpet. At least the mouthpiece had disappeared from the child's mouth and caused symptoms of difficult breathing and swallowing. A number of physicians were consulted, and a number of different forms of bougies employed to locate the object, all of which proved unsuccessful. When the child was brought to the Vanderbilt clinic it was found that the mouthpiece was lodged above the soft palate in the nasopharynx. From here it had caused all the symptoms that had been noted yet had completely escaped observation. The probabilities are that it had been coughed into this position.

Med. News.

Geophagy.—The habit of eating earth, or geophagy, as it is technically called, is more widespread than is generally supposed. In some parts of Germany a fine clay is spread upon bread, under the name of stone-butter. In Upper Italy and in Sardinia earth is sold in the markets. In the extreme northern part of Sweden and in the peninsula Kola, an earth composed of infusoria and called mountain flour is baked in bread. In Persia earth is used in the manufacture of certain sweetmeats. In tropical regions the use of earth as an article of food is well-known; but it is also employed as a medicine in Nubia, and among different tribes its use has a religious meaning as well. Many explanations are offered for such a widespread custom. It is not impossible that these various earths have more or less flavor, and that they supplant to a certain degree the use of salt.

Med. News.

The Mouth as an Index to Character.—A certain philosopher declares that a woman is known by her mouth—not by the words that issue therefrom, but by the shape and color of the lips and the lines and dimples that gather about this important feature. He is supported in his theory by physiognomists, who all endeavor to impress us with the fact that no woman with the small, red-lipped, "Cupid-bow" mouth, so praised in song and story, was ever intellectual or generous of heart. He says further that "it is consoling to those whose mouths are not in accordance with the lines of beauty laid down by the poets, to be told that a 'wide, straight mouth with strong, white teeth' denotes the woman of superior intelligence, goodness of heart, strength of mind, and a thousand and one good sterling qualities which we all like to think we possess." It is the fashion at present for women to hold their lips very slightly apart. This is supposed to give that innocent, wistful, wondering expression which was the peculiar property of the heroines of old-fashioned novels, but which bicycle riding and the kindered modern amusements have caused to vanish. It is difficult for the thin-lipped, determined woman to acquire this trick, but perseverance works wonders.

English Outlook.

Faith Healing.—It is well known that Dr. P. S. Henson, of Chicago, has a defective eye. A good man and his wife, members of the Henson household of faith, have felt for some time that their pastor would be much improved if the lame eye could be made like unto the other. These persons are firm believers in the faith-cure theory. They went to see him about it.

"We have been praying for you that you may have two perfect eyes," they said to the doctor, "and have now come to pray with you. Will you not ask the Lord right here and now to give you a new eye?"

Dr. Henson's reply was startling.

"What kind of teeth have you?" he suddenly asked the brother.

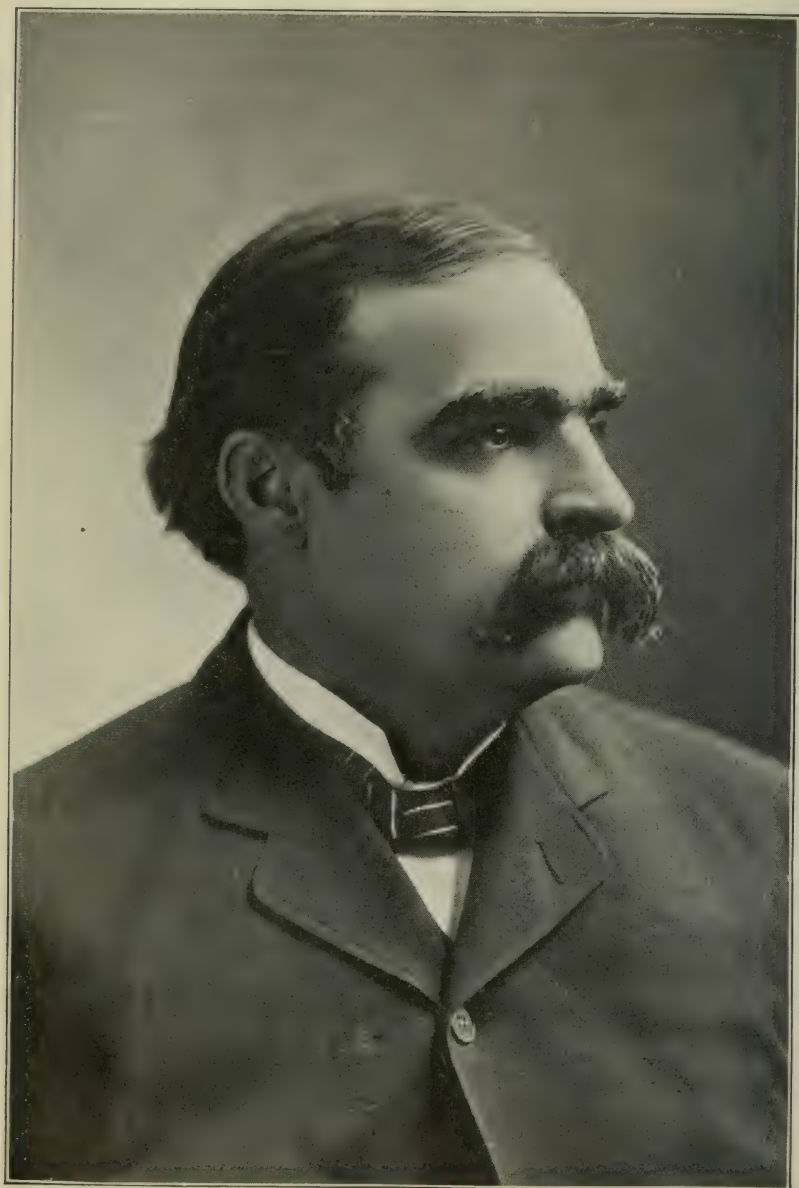
"Why—why, that's a strange question," he stammered, "but I don't mind telling you that my teeth are mostly false."

"What kind of teeth do you use, sister?" he asked of the other.

"Same kind," she frankly admitted.

"Well, good friends," rejoined the doctor, "you go and ask God to grow some new teeth in your mouths. According to your theory He will do it without delay. When you get your teeth, come around, and we will see what can be done about that new eye!"

This happened some time ago, but the good people are still grinding on artificial molars, and Dr. Henson still looks down on his great congregation with one eye. *Epworth Herald.*



Thos. Mearns & Co.

THE DENTAL BRIEF.

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No. 7

ORIGINAL COMMUNICATIONS.

FULL PORCELAIN DENTURES.

By F. A. Coney, D.D.S., Doylestown, Pa.

At the instance of Dr. Litch, I have prepared the following article on full porcelain dentures, generally known as mineral plate teeth, invented by Loomis and Lukens in the year 1848.

Impressions and Models.—For this process two impressions and two plaster models are necessary; one to be enlarged in all its dimensions, as presently to be described, and the other to be used in the final fitting of the fused porcelain denture.

The articulation or bite should be secured by using a gutta-percha or other base plate sufficiently rigid to maintain its shape in the mouth. Place upon it a roll of slightly softened bees-wax sufficiently large to insure that the opposing teeth will strike it; place this in the mouth and direct the patient to bite; by this is ascertained the length of teeth required, and the contour which will secure the desired expression of the face. When the shape of the bite is perfected draw on the wax the median line or the line marking the center of the face, and remove the bite from the mouth.

Next build on the cast back of the condyles a one-inch extension in plaster. The cast is then quartered by first cutting with a saw through the median line, back over the palatine arch, which will divide the model into two parts; these are then sawed across in the opposite direction, between the first and second bicuspid, thus making four pieces. (See Fig. 1.)

In the lateral wall of each of these four sections a groove should be cut to assist in securing a stronger union when the sections are reunited with plaster.

Next with shellac varnish paint the four pieces on the palatine surface and over the ridge; this serves as a stain and will differentiate the dividing line when the new plaster is added.

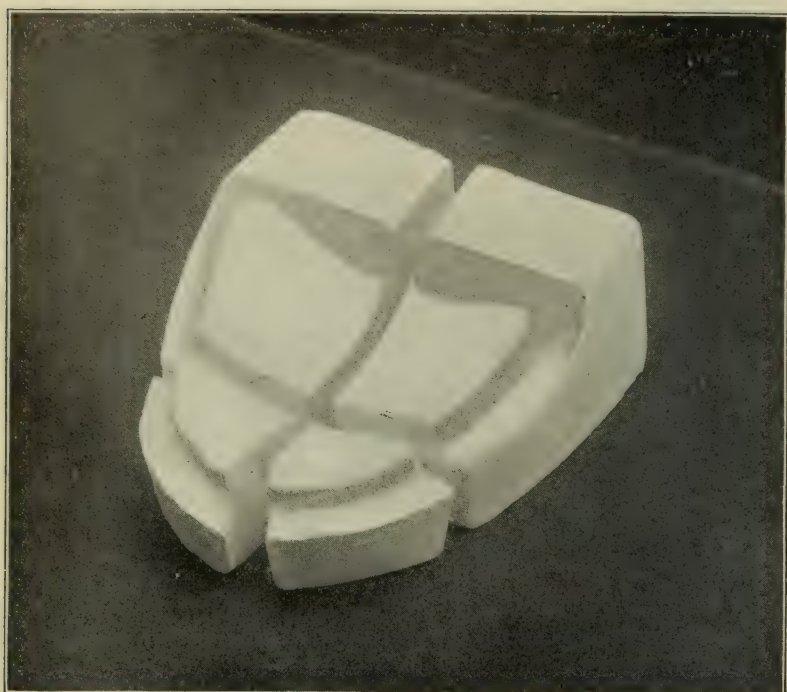


Fig. 1.

Enlarging the Models.—For mineral plate work it is necessary to have three strips, preferably made of maple wood, which are known as the expansion strips. (Fig. 2.) The dimensions of the expansion strips are as follows: In length eight inches; in width one and one-half inches; in thickness the thinnest is three thirty-seconds of an inch; the medium one-eighth of an inch, and the thickest, used only in lower cases, three-sixteenths of an inch. The strips must have intersecting notches to allow them to form a cross.

The expansion strips are placed upon a level surface, preferably a glass slab, with the thinnest strip lengthwise and the medium strip at right angles over the bicuspid.

Place the four quarters of the model on either side of the strips, as seen in Fig. 3. Fasten the model securely so that the sections will not move, and then remove the strips; add plaster at the end of each opening. The purpose of this plaster is to unite the models. Put a little sweet oil over the face of the cast already covered with the sandarac varnish.

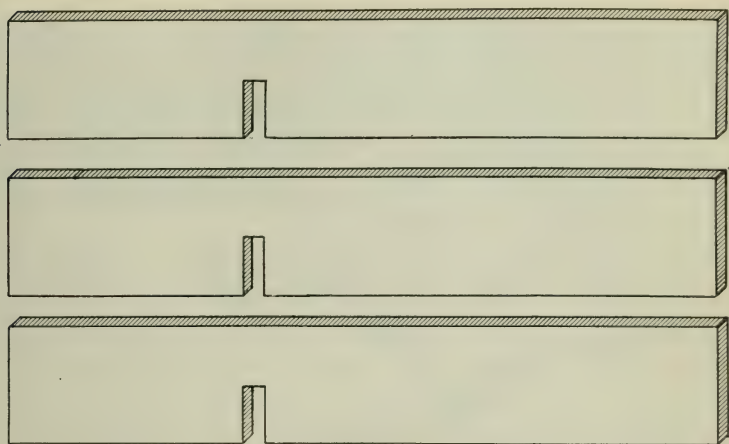


Fig. 2.

Mix plaster as thick as cream, and run it in the grooves. After the plaster has hardened proceed to trim the model, removing all excess of plaster. Cut a groove in the back part of the model for the purpose of holding the articulating model or bite in position.

The base plate and bite being made to fit the mouth, will, of course, be too small for the enlarged cast; hence they must be quartered and the quarters placed on the enlarged cast, after which the spaces between the quarters are filled in with beeswax, thus reuniting the sections in their enlarged form.

After this coat the entire face of the bite and model with shellac, and when dry oil so that the articulating model will separate readily. This is made in the usual way by pouring plaster over the entire surface, and building it up to the requisite height and fullness.

The cast and bite having been enlarged laterally and antero-posteriorly, to allow for the shrinkage of the porcelain ma-

terial in baking, the cast must also be correspondingly enlarged as to its palatine aspect. To do this with uniform accuracy and success requires wise calculation and that skilled judgment which comes only from practice.

Assuming that the palatine vault is one-half an inch in height, measuring from the center of its posterior surface to the

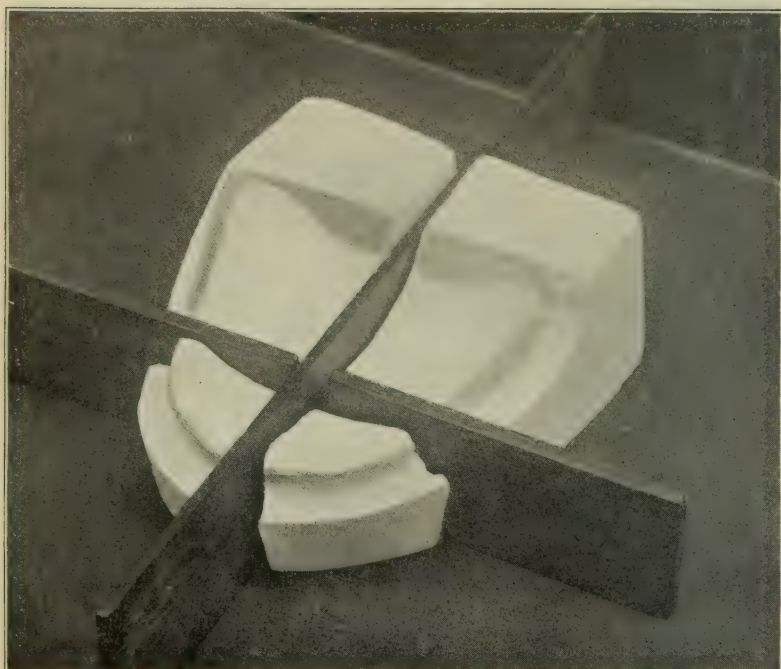


Fig. 3.

level of the surface of the alveolar ridge, the cast should be scooped out to the depth of three-sixteenths of an inch. If the palatine vault is more or less than half an inch in height, the cast is proportionately more or less cut away.

In Fig. 4 is shown the base-plate in position on the fully enlarged cast. The space, shown in black, between the under surface of the base-plate and the palatine surface of the cast indicates the extent to which the plaster has been removed to increase the height of the palatine vault.

Preparing the Carving Model.—The next step is to prepare some spermaceti in a small tin cup by melting it over a spirit lamp. Add enough vermilion to color it a cherry red; then with the liquid spermaceti cover by aid of a camel's-hair brush the palatine surface and ridge of the enlarged or carving model to about the thickness of a five-cent nickel piece. This is done

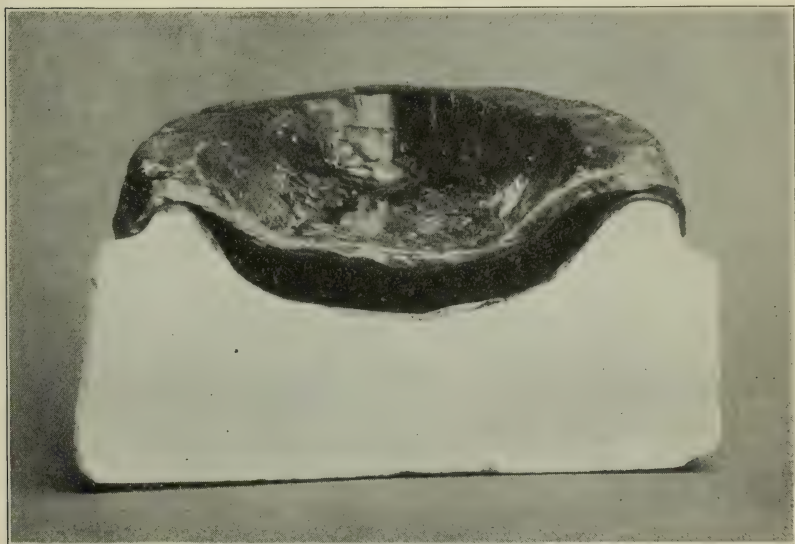


Fig. 4.

to facilitate the removal of the carved porcelain plate from the model, as will be described later on.

Apply with a camel's-hair brush sweet oil over the antagonizing model or bite, so that the bite will separate from the body without drawing it. The model is then ready to receive the porcelain material.

Carving.—Luken's "A" body is used. It is the strongest body known, and fuses at an intense white heat. This body should be mixed in a porcelain bowl or wedgewood mortar by adding sufficient water to make it the consistency of putty. It is then ready to be packed or worked into the carving model. When the space is full of body, dry out the surplus moisture by means of a muslin cloth. This process also makes the body

more solid and firm. When sufficiently dry the body is ready to be carved.

The carving instruments consist of string-bow, carving-knives of different shapes, one spatula, and camel's-hair pencils. While engaged in the artistic labor of carving, the operator should bear well in mind the requirements of each particular case. The width of the teeth is marked off, beginning at the central or median line; the desired height is also given; with a

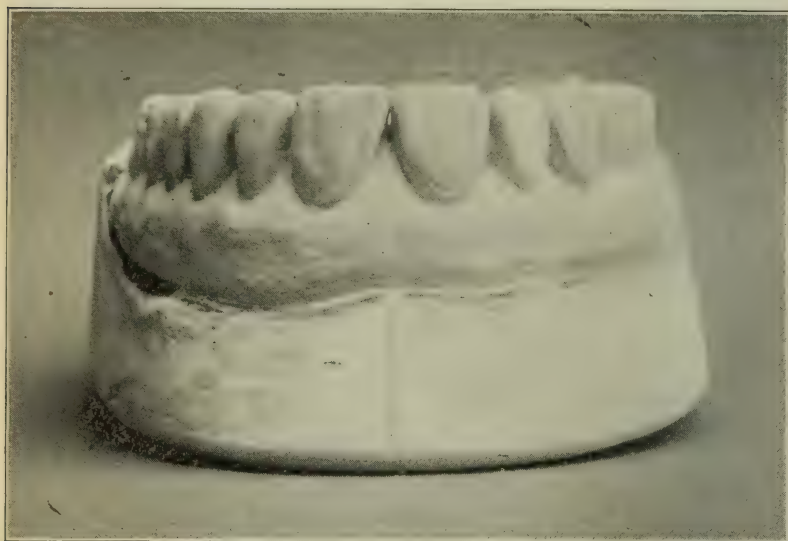


Fig. 5.

straight carving-knife cut a "V"-shaped space between the teeth. The necks are carved in a semi-circular groove, but not deeply. Make the teeth incline towards the center equally on both sides. The model is then reversed, and the gum festoons between the teeth are shaped.

Each individual tooth is built up to the desired size and contour. The gum is contoured to reproduce the outlines and curvatures found in nature, as also are the rugæ on the palatine surface. Figs. 5 and 6 show the general appearance of the denture at this stage in the carving process.

To take the plate off of model requires delicate manipulation. The operator should use for the purpose a large alcohol

lamp, and with the aid of the blow-pipe throw a flame over the entire piece, thus melting the spermaceti; this with the coloring material enters into the porcelain body and thus strengthens the piece so that it can be removed from the model by the hand.

The First Baking.—After the plate is perfectly cool take it between the forefinger and thumb, carry it to a slab covered with powdered kaolin built to the depth of an inch, and lay the



Fig. 6.

piece on the kaolin. It is then ready for the first baking, which is designed to harden the plate for the reception of the enamels. Put the slide with the plate in the muffle of an electric or other furnace. Leave an opening for the escape of smoke which arises from the fatty matter in the plate. Turn on the electric current, or apply other source of heat, slowly. When looking at the plate, you will observe that it has turned black, which is caused by the carbonization of the spermaceti and oil it has absorbed. As the heat increases, the plate resumes its normal color. At this stage close all openings of the furnace. Increase the temperature until the muffle is at a bright red heat.

When the plate gets as hard as parian marble it is sufficiently baked for enameling purposes. In order to cool the plate remove the slab from the furnace. When the plate is cold, brush off the kaolin and transfer the plate to the carving model.

Enameling.—The enamels are technically called neck, point, stain, and gum enamel. They are applied to the piece with camel's-hair pencils, the model being held with the teeth upwards. Enamels should be mixed in porcelain cups, with clean water, making a cream-like solution. The yellow or neck enamel is first applied, extending it half-way up the teeth toward the cutting edge or point. The neck enamels vary in color from bright yellow to dark brown. The point enamels are applied to the cutting edges of the teeth, extending towards the necks so as to overlap or blend with the neck enamel. Point enamels vary from white to different shades of bluish-gray and blue.

The gum enamel is applied between the necks of the teeth with the point of the carving-knife; this enamel is also applied over the entire alveolar surface, but is not allowed to overlap the neck enamel. Apply the gum enamel also over the palatine surface, extending from the necks of the teeth to the posterior part of the plate. To bring out a natural effect the gum enamel should be stippled, and the festoons around the necks of the teeth should be ridged, so as to give them a certain prominence and individuality, and make them look as if they had grown out of the gum naturally.

The Second Baking.—Having finished the enameling, prepare a slide with kaolin in the same manner as for the first baking, and transfer the plate to the kaolin with the teeth uppermost. All being ready for the final baking, insert the slide with the plate in the muffle, close the furnace, and slowly raise the temperature until an intense white heat is reached. Examine the plate, and if the gum enamel is sufficiently fused and glazed, turn off the heat and close all openings with fire-clay. Leave the plate in the furnace until both are cold.

Fitting.—To make the plate fit the mouth will require considerable grinding. This is accomplished by coating the model, which was left unenlarged, with sweet oil colored with vermilion. This pigment will spot the under side of plate and show the exact places to be ground off in order to make the plate fit solidly on the model. Proceed in this manner until the plate fits accurately. The grinding is done with corundum wheels and

points. After this is finished the plate is ready to be inserted in the mouth.

Lower Dentures.—We now proceed to the consideration of the lower denture, which is far easier to make than an upper plate. The principal difference consists in the use of the expansion strips. Quarter the model in the usual way, using the thickest strips between the bicuspid and the thinnest strip lengthwise. Connect the four pieces of the model, and bite, as

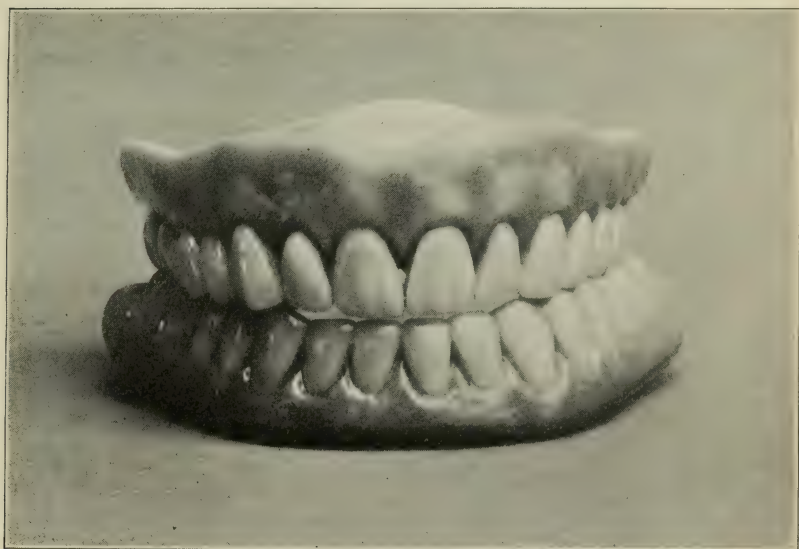


Fig. 7.

in the previous instance. Follow the same carving, enameling, baking and grinding directions as for an upper denture.

In closing this brief and hasty sketch, I can only say that great excellence, in the making of the full porcelain denture, can only be the result of special fitness on the part of the maker; added to much patience and continued experimentation. The technique is not to be acquired in a day, and while I would not discourage a beginner, I would be derelict in my duty as an instructor to hold out the false hope that there is a royal road to the successful making of a porcelain plate; one that shall be at once æsthetic, prosthetic, cosmetic, and, last, but not least, shall have staying and maticating qualities recommending it to the wearer.

An entire denture made several years ago in the manner above described, and still in satisfactory use by the patient for whom it was constructed, is shown in Fig. 7. Owing to the fault of the photographer there has been a slight disarrangement of the articulation which in the cut is faulty, although really entirely correct as the plates are adjusted and worn in the mouth.

A CHRONIC CASE OF EMPYEMA OF THE ANTRUM.*

S. D. Hodge, D.D.S., Burlington, Vt.

In regard to this case, which is that of a prominent clergyman, aged 56, of Burlington, Vt., I would like to say in the beginning, that while I have been connected with the case from the first surgical treatment of the antrum, the general direction of it has been under the care of Dr. Chretien Zaugg, of Montreal, and the specialist of the Fanny Allen Hospital, of Burlington. The antrum affected is on the right side.

There is one point in the etiology of diseases of the antrum on which there is unanimity of opinion; it is not an idiopathic affection. Most of the dental text-books give dental caries, periostitis, injury and abscess of the roots of the teeth as the cause. I think that most dental practitioners are of the opinion that nearly every case can be traced to these sources. On the other hand, most rhinologists of to-day, while giving diseases of the teeth as the cause of the majority of cases of antral trouble, are of the opinion that a good percentage of cases are of nasal origin.

Of the physiological function of the antrum, and the accessory frontal, ethmoid and sphenoidal sinuses little is absolutely known. A more careful and systematic study of the physiology and pathology of these sinuses, will, as in all other branches of medicine, clear up disputed points. The pathological phenomena of antral diseases do not differ from those that attend purulent processes of mucous membranes elsewhere.

So far as I know, every one who has been connected with this case is of the opinion that the cause of the antral trouble was chronic nasal catarrh of many years' standing, and that there was empyema of the antrum for a long time before it was sus-

*Read at the twenty-fourth annual meeting of the Vermont State Dental Society, March 22d, 1900.

pected that it was involved. It is not necessary to go into the minute anatomy of the antral cavity. You will readily recall the fact that it is only one of a series of accessory cavities and that the orifices by which the frontal, anterior ethmoid and antral cavities communicate with the nasal chambers are close together, and that pus or a purulent discharge from one of these sinuses might easily find its way into the antrum, infecting that.

Empyema of the antrum is usually preceded by a catarrhal inflammation, and with the access of microorganisms assumes a purulent character. In this case there was a general impairment of the vitality of the patient. There was very marked anæmia; lips, ears, eyelids were bloodless. You could almost look through the hands, and the liver and kidneys were inactive. This condition of active toxemia was very marked for two years before trouble with the antrum was discovered, and so grave was the condition of the patient at the time of the opening into the antrum that there was great anxiety lest general systemic infection should follow the operation.

About two years before trouble with the antrum was discovered, the right superior bicuspid tooth had been crowned with a Logan crown. It was an excellent piece of work in every respect, and had done good service for something like eight years when the post of the crown broke. I drilled out the broken post and put on a new Logan crown. This was worn with entire comfort for something over a year, when the root split. The patient was at this time ill at the Fanny Allen Hospital, and as the root began to abscess, it was taken out at the Hospital. The root was taken out Christmas day, 1896. This healed without any trouble.

For many years the patient had been troubled with severe headaches, the pain being in the frontal region. The usual symptoms of antral trouble were absent, and the teeth and gums were in a healthy condition; no alveolar enlargement. About August of 1897 there was a sense of distention and weight in the upper jaw. He went to Montreal and placed himself under the care of Dr. Chretien Zaugg. August 10th, 1897, Dr. J. H. Bourdon, of Montreal, extracted the right superior first molar, and Dr. Zaugg opened into the antrum, following the socket of the palatine root of the first molar. Cocain was used in this operation, the patient not desiring to take an anæsthetic. The condition of the patient was such that it was thought best to pursue a conser-

vative line of treatment, and not attempt any radical operation; making simply an opening for drainage, using antiseptic washes, and building up the system, believing that with increasing vitality both the antral and nasal trouble would be brought under control.

Upon opening into the antrum a large amount of pus was found. This was washed out with a saturated solution of boric acid.

About a week after the operation the patient, accompanied by Dr. Zaugg, came to my office, and a plate was made to hold drainage tube in position. This drainage tube was silver; it was worn till November 23d, when Dr. Bourdon, of Montreal, made another plate, using a different shaped tube. This plate was clasped to the second molar and first bicuspid. In October, 1897, an operation was performed by Dr. Zaugg, removing hypertrophied tissue from the middle turbinal, left side. This was removed by cautery.

In April, 1898, Dr. Zaugg removed a large mass of hypertrophied tissue from inferior turbinal, right side, using the cautery in this operation. Much relief was given by these two operations.

There had been a gradual improvement in the condition of the patient from the time of the first operation of opening into the antrum in August, 1897, till the summer of 1898. He then began to be troubled with violent headaches, the pain being most severe in the frontal region, and the general condition began to grow worse. He sent for Dr. Zaugg, who came to see him August 29th, 1898. The patient was suffering intense pain and had a high fever. Examination showed the membrane covering the middle turbinal, right side, greatly congested, and so great was the congestion of the tissues that the passage was nearly closed, nearly filling the space between the middle and inferior turbinated bones. This was immediately relieved by the application of a four per cent. solution of cocain. The nasal condition was so severe as to give rise to a painful attack of trifacial neuralgia. Heroic doses of quinine and codien were given for six days. The congestion and pain were relieved, and the following week he went to Montreal, and Dr. Zaugg cut away the hypertrophied tissue from middle turbinal, right side. This was cut away by snaring.

It was thought best at this time to take out the first bicuspid

tooth. This was taken out by Dr. Bourdon, who made a new plate, and a new drainage tube of gold was used. There has been a marked improvement in every respect since these operations. The general health has improved, no further headaches, and the discharge from both the antrum and nasal passages less in quantity and less purulent. A little later another plate was made by myself, using the same drainage tube; this is the one he is now wearing. It is clasped to the second molar and the cuspid. Many different solutions have been used to wash out the antrum. After the first operation boric acid, saturated solution, alone was used; peroxid of hydrogen, ten per cent., was used for some time; carbolic acid solution, two per cent.; resorcin, one, two and three per cent.; Marchand's hydrozone, fifty per cent., followed by glycozone; glyco-thymoline, twenty per cent.; tr. calendula, two per cent.

From the time of the first operation in August, 1897, until September, 1899, the washing out of the cavity had been done principally by the patient himself two or three times daily, the syringing being done through the drainage tube, and every week coming to my office to have the plate and drainage tube thoroughly cleansed. In September, 1899, at the suggestion of the specialist of the Fanny Allen Hospital, we commenced the use of protargol, taking out the drainage tube every day and thoroughly irrigating the antrum through the opening in the alveolar process. The protargol was at first used one-half of one per cent. solution, but later about one-fifth of one per cent. The protargol was followed by a mild solution of Wampole's formalid. This gave the most beneficial results of anything yet used. I know of no remedy equal to protargol for the washing of a diseased antrum. The protargol was used for about four weeks daily, and since that time has been used occasionally, when there is much catarrhal discharge. We are now washing out the antrum, removing the drainage tube four or five times a week, using a mild solution of Wampole's formalid. The patient washes it out daily through the drainage tube, using a solution of boric acid or chlorid of sodium. Numerous bacteriological examinations of the discharges from both the antrum and nasal passages have been made. Streptococci and staphylococci and pus cells have been found in every examination. The most interesting microscopical examination was one made at the Vermont State Laboratory of Hygiene, February 4th, 1899, which is as follows:

Growth reddens litmus.

Ferments Smith solution.

Grows with gas production in gelatin stab.

Gives indol reaction with Dunham's solution.

Bacterium is *B. coli communis*.

Pathogenic for guinea-pig in nine days.

I think that this bacillus has not been found since.

The condition of the patient to-day is that of returning health and vigor. In washing out the antrum, the water as it comes away is usually clear, showing but little discharge from the antrum. There is considerable discharge from the nasal passages. The last microscopical examination made a few weeks ago showed the same bacilli in both antrum and nasal passages.

Trans-illumination of the antrum shows slight hypertrophy in one or two places. No trace of caries of the bone can be found.

It is my opinion that if the nasal passages were in a normal condition, it would be safe to take out the drainage tube and close up the antrum.

I am indebted to Dr. H. E. Lewis, the eye, ear, nose and throat specialist of the Fanny Allen Hospital, for the data of the surgical operations and the microscopical examinations.

PORCELAIN INLAY.*

H. Burbidge, D.D.S., Woodstock, Vt.

Up to the present time nothing has ever been introduced to the profession for the stopping or filling of cavities in the natural teeth caused by decay that in any sense of the word produces an artistic result.

The choice so far being gold, the excellent qualities of which cannot be denied. But from an æsthetic point of view it is sadly at fault.

How often do we hear our patients say: "Will the gold show?" Now, if our work was of the highest type of art, and the material did show, there would be no need of this question, as it would not show, for being the highest type of art it would con-

* Read before the Vermont State Dental Society, St. Johnsbury, Vt., March 22d, 1900.

ceal itself. Therefore, with the advent of porcelain in such forms that it can be handled by almost any dentist who will take the pains to master the fundamental principles, this main objection has been removed.

In endeavoring to give you as briefly as possible an outline of the work as I have been able to acquire it from time to time, those of you who take it up will bear in mind that you will suffer a great many disappointments and failures, especially in the beginning; but your successes will always outweigh them, as your patients will be very grateful to you for what you accomplish for them when you obtain a good result.

As is not generally known, the making and inserting of a porcelain inlay consists of the following steps:

1. The preparation of the cavity.
2. The adaptation of the platinum or gold form in which the porcelain is baked or melted.
3. The investing of the gold or platinum form; the packing and melting of the powder or paste.
4. Finally, the removal of the form from the finished inlay and the cementing in place of the same.

Let us, therefore, consider the proper manipulation of the various steps, as before mentioned. For the simplest form, let us conceive a cavity oblong in shape, with flaring walls and the floor perfectly smooth, with no retentive points. Especial care should be given the margin of the cavity. It must be as clearly cut and perfect as is possible for human agency to make it, or the work will be a total failure. This may be accomplished by the aid of small stones, diamond points or finishing burrs.

The next step is the making of the platinum or gold form. This is conceded as the most difficult part of the whole operation, as on this fitting accurately depends the success of the finished piece of porcelain.

In accomplishing this I prefer rolled gold, No. 30, it being softer and more pliable than platinum. I take a piece larger than the orifice of the cavity, then, with a round smooth burnisher, gently rub the gold upon a piece of soft, smooth and clean cork, depressing it in the center to the approximate size of the cavity to prevent tearing the gold in carrying it to the bottom of the cavity. After which I anneal and place it in the cavity and pack it tightly with small balls of cotton or spunk, repeatedly burnishing the edges and annealing as often as required.

Being satisfied that the form fits accurately, I take a small piece of white wax which is slightly warmed, and press it into the cavity with a flat burnisher. If it is an approximal cavity, involving labial and lingual walls where the burnisher will not do, I select an ordinary polishing strip (one of the finest, wide enough to entirely cover the cavity), putting the smooth linen side next to the wax, and I pull the wax into the cavity, using care in not drawing the tape in one direction or the other, but with a steady pressure forcing the wax into all parts of the form and avoiding a surplus of wax beyond the margin. The form can now be removed with very little danger of getting it out of shape.

After this I imbed the form in an investing material which will stand the heat and can be dried quickly without cracking. Then I warm the investment over a spirit lamp, and as soon as the wax warms a little I take it out, not allowing it to melt. Next I wash out the form with alcohol in order to remove all traces of the wax; then, as a further assurance of this result, I place the investment in the furnace and bring it to a red heat.

After cooling, it is ready for packing with the porcelain paste. Care must be taken in packing the paste so that it will not shrink away from the margins. I generally make at least three bakings, sometimes more, according to the case. Having selected the proper color or colors necessary, I mix the powder either with gum water or distilled water (preferably the gum water, as you can then carve it up better to shape if necessary) to the consistency of thick cream, with which I cover the bottom of the matrix, letting it run up nearly to the margin. Then I tap with an instrument to bring the water to the surface and absorb with a piece of clean linen, continuing to tap until the paste is closely packed down and all the surplus water absorbed. Now, with a small camel's-hair brush, remove the center of the paste, leaving just a ring around the margin, for if this is not done it will shrink toward the largest mass of its own body, which is the center; but this center has been removed, therefore it shrinks toward the circumference.

Then place it at the mouth of the furnace and turn on the current, passing the investment in as it heats up until it is carried to the back of the furnace. The first baking should be thorough, as this will not move in subsequent heatings unless carried to an extreme. The next packing should fill the matrix

even full. Proceed as before, tapping and absorbing the water with linen. At this stage of the manipulation care should be taken to remove all particles of paste that overhang the margin of the matrix.

If this be not done, the margins will be ragged, and there will be small bubbles, as a perfect margin is the most essential feature of a porcelain inlay.

After the second baking, there may or may not be a shrinkage, according to the fineness of the powder or care in the packing of it. If there should be any shrinkage, add sufficient to supply the deficiency wherever it may be, and bake again. This can be repeated any number of times, according to the requirements of the case at hand. After the last baking, it is better to leave the inlay in the furnace to cool, as sudden changes of temperature may cause fracture of the finished piece.

When cool enough to handle, the gold may be stripped off, commencing at the margin all around with a pair of pliers to prevent marring the edges, and when once it is free of the margin it can be pulled away without danger.

The walls of the inlay should have fine grooves cut in them to assist in the retention. (If possible, these should not be opposite to one another, as in small inlays they would tend to weaken it.) This can be done by fine diamond disks, which are kept wet when cutting.

It is obvious that the cementing of the inlay is a very important matter, as it will affect the color by many shades, generally rendering it darker.

Any four-color high-grade cement that will mix thin without deterioration in strength will answer. Grey and white are the colors that will match the majority of cases. Mix the cement somewhat thinner than for filling (few trials will be sufficient by way of experiment).

The cement should be thoroughly smeared over the walls of the cavity and inlay. Carry the inlay to place with small wedges or points of orange wood. Pressure should be maintained, if possible, until the cement has nearly hardened. I find it better to wait until a subsequent sitting to remove a surplus of cement, also to examine and complete the operation. A few considerations in regard to details would not be out of place.

The inlay will go to place better if a double thickness of gold is placed in the bottom of the cavity.

Never bevel the margin of the cavity to any extent, as it will be very liable to fracture, being thin, if much pressure is applied when cementing to place.

In all proximal cavities it is better to choose a lighter shade than the tooth itself, as the inlay is not translucent like the tooth itself, but is opaque, making it look darker.

Now, in regard to cements obtainable at the present day. In order to get the best results from them, it is necessary to incorporate as much of the powder with the liquid as possible. Now, this cannot be done in the setting of an inlay. As I said before, the cement must be mixed somewhat thinner than for filling; we necessarily deprive it of an important part of its consistency. Again, it is my firm belief that what is required is a cement that is clear in color. For no matter how perfect the color of the inlay, any cement with a semblance of color will act as a cloud coming between the tooth and inlay, thereby increasing the opaqueness. And it will not be until we can produce an inlay having the same translucency as the tooth itself that we shall attain the highest type of the art.

ABSTRACTS AND SELECTIONS.

BEANS, THEIR MORPHOLOGY AND FOOD VALUE.

Morphology of Beans.—Taking the bean botanically, it is the seed of the phaseolus species of the leguminose family. The seed is made of the germ and two lobes, called cotyledons, which are seed leaves loaded with starch to serve as food for the germ and for animals. The points of interest are:

The seed is covered with a thick skin or envelope, which is made up of a set of beautiful prismatic crystal-like shapes of cellulose placed side by side longitudinally, so that these ends make the outside and inside surfaces of the skin or envelope and appear very much like the tops of the Giant's Causeway crystals of trap-rock. In the middle of each prism is an hour-glass contraction, which is in the central axis and is surrounded with clear cellulose, which fills out the contour. The crystal elements of the membrane are quite insoluble, polarize light, and resist the digestive influences of the alimentary canal. They are found in large quantities in the excrement of bean-eaters, and furnish a sure proof,

when found, that beans or peas entered into the diet of the case under examination. In the Lima beans the lateral surfaces are narrowed, leaving tack-like heads or irregular shapes at both ends. Of course, the membrane thus made cannot have the strength of the membrane of the common white bean, as the prisms do not touch along their sides. The epithelia of the common bean have remarkable interdigitations. When interlocked, unsoftened, and unseparated by cooking they must hold together the parts over which they are spread with great firmness. Indeed, if beans uncooked sojourn in the meatus of the ear, in the nostril or in the alimentary canal, they remain unchanged, more or less, for a time, and are voided almost in the same condition as when they entered. No sane person would think of eating mature dry beans for food. The toughness, thickness and peculiar structure of the envelope of the bean make it such a strong obstacle to digestion and assimilation. The substance of the bean is made up of starch grains, connective tissue, spiral vascular tissue, etc.

The starch is not peculiar in its appearance, and is readily recognized. In a section of an uncooked bean the starch grains appear in globular masses of varying sizes, filling up, apparently, the meshes of the connective fibrous tissue, which is quite thick, fibrous, homogeneous, polarizes light, and is probably cellulose or wooly fibre, very resistant to outside influences of any kind. In a section of raw Lima bean the meshes appear as in one continuous network, making areolæ; but when cooked by baking or boiling, there is a great change wrought, which is surprising, for the starch grains are found to be contained in sacs of thick cellulose, which are distinct from each other and are of various sizes, shapes and contours, containing a variable number of starch grains. They are globular, pyriform, elongated, compressed, apparently triangular, sometimes reminding of *diffugia cratera*, sometimes of *pelomyxæ*, and so on, but all covered with a transparent envelope or sac of cellulose, which looks like the clear margin of *gemiasma verdans*, *rubra* and *plumba*, found in malaria. The thickness of this coat is worth attention. Taking an average sac, I found it measured 8.5 mm., while the thickness of the clear investing sac measured 0.5 mm., so that the proportion for the case measured would be 8.5 to 0.5, one-seventeenth of the whole diameter for the investing sac; or, to put it differently, if the sac were an egg two inches long and had a proportionately thick

shell, it would be one-quarter of an inch thick, which certainly would be an extraordinary thickness for a hen's egg, and make it tougher than an ostrich's egg, one of which exploded at the Peabody Museum, New Haven, the other day, from the pressure of internal gases, and came near killing the scientific gentleman who was studying it. It is probable that it takes a great force to explode one of these sacs of baked beans. The fact that so few of the sacs are found ruptured after cooking and after migrating through the alimentary canal shows a great power of resistance to digestive agencies. In beans not thoroughly cooked the diagnosis is based on the following:

1. Action of polarized light.
2. Condition of the starch contained within the sacs.

First, Polarized Light.—On the uncooked starch grains polarized light sets with great beauty, but when the starch is cooked, polarized light has no action; hence a good test of cooking is by polarized light. As the beans' starch grains are cooked they polarize light less and less, and when cooked (to repeat) polarize it not at all; so one can judge at once, as to whether beans are cooked or not, by polarized light. The purple selenite stage slip is the best. The writer discovered this about ten years ago (1877), and thinks he has the priority. However, this has been found so good a practical test that he thinks it must be adopted in the future.

Second, Condition of the Bean Starch Grains.—Before cooking they are clean cut, distinct; after thorough cooking they lose their outlines and forms, blend into one homogeneous mass that is granular, devoid of structure, sometimes striated in coils, looking much like the solid extract of a herb as found in pharmacy, only not so deeply colored. The amount of disintegration, breaking down and homogeneousness constitute, in my opinion, a very good test for the thorough cooking of baked beans.

Boiling the beans serves to coagulate the protoplasm into a nucleus leaving a clear ground-work about it; the grains are swelled and disturbed more than in baking. These morphological changes are easy to study. A good one-quarter inch objective, a two-inch eye-piece, with a slide, cover, stand, and toothpick, are means ample enough to verify these statements from off one's own table. With the toothpick small portions of the baked beans can be transferred to the slide, a little water and manipulation with the cover will disturb the specimens into an even field,

and the slide is ready for the microscope. Those who have a polarizing apparatus can test the specimens with it. The writer hopes that more attention will be paid to the morphology of food in time to come; for certainly it furnishes a field of study always present, easy to get at, and of vital importance to the human race in more points than the esthetic one. This leads to the physiological view.

Baked Beans in Relation to the Functions of Digestion and Assimilation.—(Provided they are in good order and thoroughly cooked, so as to furnish the simplest problem of solution by the functions named; provided the cellulose structures are softened, macerated and separated; provided the salivary liquids are thoroughly mixed in the mouth, and the beans thoroughly ground by the teeth.)

In the stomach the beans digest little; in the intestines the bile, the pancreatic and intestinal fluids act on the starch, complete the changes already begun by the cooking, the mastication, and the gastric juices, and turn into glucose, in which soluble condition it is taken up into the portal circulation and transmitted to the liver.

The other elements of the beans that are made soluble are also absorbed into the system, and it is fed and warmed by the beans. The longer this food stays in the stomach, the more it ferments. For it must be remembered that the alimentary canal is a great reservoir of fermentative vegetations, as a rule, so that sedentary persons have more trouble with this article of food. Persons who live out of doors, and who move about actively and work hard, digest vegetable foods better than the sedentary, as the food is accelerated in its passage through the alimentary canal, and the indigested remainder has less time in which to ferment. Hence, when we hear of a Maine lumberman thriving on baked beans, which, frozen solid by the barrel and cut with axes, are then cooked, we lay the benefit to the fresh air of the woods and the violent exercise.

From what has been said it must be admitted that baked beans are not easy to digest, and that there is good reason for the unusual amount of intestinal gases that accompany their digestion. This gas is usually carbonic acid; it is formed inside the bean sacs, and they must explode like microscopic dynamite bombs in the intestines! If we consider that nerve force is the agent by which digestion is regulated, if not produced, other

things being equal, it takes more nerve energy to digest baked beans than some other kinds of food, and, of course, there is less energy left to run the rest of the economy in the departments where nerve force predominates, and hence the cerebral centers cannot act with that efficiency and energy that they could if the system was fed on a food that took less nerve force to digest it. To be sure, allowance must be made for differences in individuals in the power of digesting baked beans and other articles of food. Some will digest their meals when others cannot, because their organs are in remarkably good condition to do their work; but aside from this, it is not profitable to abuse a good digestion; sometimes there will be a break-down.

Baked Beans as a Cause of Disease.—Some years ago, some unique but most valuable experiments were made as to baked beans. A physician and six strong, healthy laboring men were placed on an exclusive diet of baked beans, coffee and milk. They were sedentary, save that in the morning and evening they all marched out on the street in military order for exercise. Almost immediately there was diarrhœa, followed in all the cases (in about fourteen days) by consumption of the bowels. If any one doubts this, he is asked to live on the same diet exclusively for the same time, and report results, which were so uniform in the above cases that there is no hesitation in predicting like issues. This may be called too severe treatment of any food, and that no food would stand such a test, because so unnatural. The diarrhœa was caused by the alcoholic fermentation of the baked beans, producing alcohol, carbonic acid and vinegar. The alcohol showed itself by the fuddling of the men, while it did good by arresting for the time the active process of the fermentation. The results of the action of the alcohol were:

1. Distension of the bowels by gas.
2. Paralyzing them by direct contact.
3. Paralyzing the epithelia of the mucous membrane, making them, as it were, drunk, causing a thickened catarrhal condition; hence the profuse liquid discharges, and later on some sulphuretted hydrogen.

It is always possible to detect the eating of baked beans by a microscopical examination of the forms found in the feces of the eater. The beautiful cellulose prisms or double tack-headed elements of the outer membrane of the bean or pea will tell the tale, while an abundance of the sacs filled with starch grains, sure

to be found, will testify to the same thing. At one time the writer verified this in his own person, and was astonished at the quantity of undigested beans and other food that ran the gauntlet of an alimentary canal which was called healthy. Once the writer visited Massachusetts State Prison at Concord (before it was used as a reformatory). Passing by the latrine, he saw a pile of baked beans, large enough to load a horse-cart, most of which had passed through the digestive organs of the prisoners. Certainly, if this exhibition meant anything, it showed that these baked beans are a poor prison ration. I think it would be more rational to feed the beans to animals whose organs are better adapted to digest them than man's, and, if need be, let man eat the animals. If the sacs of the bean grains could be ruptured before eating, considerable objections would be removed. They might be crushed between rollers or pounded in a mortar, or mashed like potatoes. If bean-eaters would take time to thoroughly cook and chew them, the situation would be improved. But probably one great recommendation of baked beans is their smallness, so that they are swallowed whole, easily, and thus save time in eating. If man had the gizzard of fowls, or stomachs like bovines, this might answer; but it seems to me we do ourselves harm in the end by imperfect mastication, which fails to crush the bean sacs and mix the juices of the mouth with the starch of the bean, and so prepare it for the digestive processes it should undergo; for if they are not prepared, a good portion is wasted, as the Concord latrine witnessed.

Importance of Cooking.—The writer has no idea of influencing the abandonment of baked beans as a food, but he would like to put in a plea for better cooking. It goes without saying that the average cooking is bad.

1. Soak a quart of beans over night in two quarts of cold water.

2. In the morning turn off the water, add fresh water, and boil them till the membranes begin to separate; turn off the water.

3. Put the beans in a baking pot, with half a pound of salt pork buried in the beans; add two tablespoonfuls of molasses, and cover the whole with water. Bake in a slow oven all day; a baker's oven is best. Watch the beans, and if they become too dry add more water. When thoroughly cooked it will be known by the softness of the beans in the mouth between the teeth, by the taste and by the microscope showing the starch grains broken

up and mixed in one homogeneous mass that will not polarize light with a selenite plate.

4. Take time to eat and chew thoroughly.

Albany Medical Annals.

DEATHS FROM ANÆSTHETICS.

It is well known that a considerable number of deaths occur every year during or shortly after the administration of anæsthetics, and especially of chloroform. It must be confessed that this is a very unsatisfactory state of things, and that the means which can be taken to diminish this mortality is a subject which calls pressingly for the attention of the profession.

Most of the cases, probably all, are subjects of inquiry by coroners, but it cannot be said that very much light has hitherto been shed upon the subject by such inquiries. The failure to obtain more satisfactory information is probably due to a large extent to the fact that the majority of coroners in this country are not medical men. The matter to be inquired into is essentially a medical question, and we are therefore glad to see that Dr. Danford Thomas, coroner for Central London, has given his attention to the matter, and has drawn up a schedule of questions which it is proposed should be answered by the medical practitioner who administered the anæsthetic in any fatal case. The schedule is somewhat formidable in length, but there can be no doubt that the accumulation of evidence of this kind would eventually supply a mass of information, which, if carefully analyzed, is likely to be of great value. The schedule, which is to be handed to the coroner at the inquest, contains the following questions:

1. What anæsthetic or anæsthetics were administered, and what influenced your choice?
2. Where and when was the anæsthetic administered? State if in an operating theatre, casualty room, out-patient department, or private house?
3. What was the temperature of the operating room? Had the room, previous to the operation, been well ventilated?
4. Was the anæsthetic given by artificial light? State what kind. If gas, was the flame exposed?
5. For what purpose was the anæsthetic administered? State nature of operation, with name and address of surgeon operating.

6. How many patients were placed under anæsthesia by you that day, and how much time was occupied in producing complete anæsthesia in each case?

7. Was there any, and if so what, reason for administering the anæsthetic quickly?

8. How was the anæsthetic administered? If by means of an inhaler, state what kind and make.

9. How was the mixture of air with the vapor of the anæsthetic secured, and in what proportion?

10. What quantity of the anæsthetic was used?

(a) From the beginning of the administration until complete anæsthesia was produced.

(b) From then until the administration was stopped.

(c) Was the anæsthetic applied by drops or by measurement?

11. How was the deceased prepared for the anæsthesia (re food, clothing, etc.)? Was there any mechanical or other obstruction to the respiration?

12. What was the condition of the heart, lungs, and kidneys of the deceased previous to the administration? Were you satisfied that the patient was in a safe condition to be placed under the anæsthetic? Had the patient previously been under anæsthesia?

13. Was the deceased, at the time of the administration, suffering or recovering from any acute or chronic illness, or from alcoholism?

14. Was the deceased excited or violent during the first stage of narcosis?

15. Was the pulse and respiration watched during the administration, and if so, by whom? State the conditions observed. What was the state of the pupils, and of reflex irritability generally?

16. At what period during the administration of the anæsthetic was the first symptom of impending death noticed? What was it? Did deceased vomit at any time? If so, when and how often?

17. Did the deceased die during the administration of the anæsthetic? If so, how long after it had been discontinued? Was the operation then completed? If so, for how long?

18. What efforts were made to restore animation, and how long were they continued?

19. To what immediate cause do you yourself attribute the sudden death of the deceased?

20. In how many cases have you given an anæsthetic previously? If any fatal cases, say how many?

British Medical Journal.

NOTES ON A CASE OF EXTRACTION UNDER NITROUS OXID.

By Herbert Bailey.

The following rather interesting case came under my notice, recently, while in charge of my partner's practice in New Plymouth.

About 7.30 P. M., a young woman about twenty-four years of age came to me to have some teeth extracted. She was, at the time, suffering from a violent attack of alveolar abscess, and had not touched food for thirty-six hours. There appeared to be a general want of tone in the system, and the patient was nervous to such a degree as to preclude the possibility of a careful examination of the case. I decided to extract the upper right first and second molars and the lower right first molar. I administered nitrous oxid gas, and did so.

The patient behaved very well during the administration of the gas. Directly the operation commenced, she struggled violently and screamed as if in great pain; so troublesome did she become, that at the end of the operation she was sitting on the floor.

As soon as she became conscious she was seized with a violent attack of rigors. I removed her to a couch, examined her pulse, which was normal, and her breathing, which was fair.

The intensity of the attack increased, and was supplemented by an attack of hysteria, which manifested itself in crying and violent struggling to such an extent that she had to be held down in order to prevent bodily injury. These attacks were followed by passive moments, when the patient complained of pain of a severe nature in the region of the pelvis on the left side and down the side of the left leg as far as the knee. These symptoms subsided, only to be followed by acute pain in the region of the larynx, inability to swallow, and difficult respiration, which lasted some fifteen minutes; during this time there was little pain in the pelvis. The pain in the larynx subsided, only to be followed

by a recurrence of the pelvic troubles as before described, supplemented by hysteria, struggling, rigors, pain in the back of neck, livid blue appearance of the face, and cold extremities.

Three-quarters of an hour had now elapsed since the operation. As matters showed no tendency to improve, I deemed it advisable to call in the patient's medical attendant, who examined the case carefully, diagnosed an attack of "perineal peritonitis," to which he attributed the pelvic pains; the struggling and hysteria he put down to the patient's neurotic disposition. The patient remained in my room for half an hour longer, during which time the symptoms gradually subsided, and was, at the end of that time, removed in a cab in a state of exhaustion.

I may state, in conclusion, that during the administration of gas, the patient had no unpleasant impression on her mind, and had no recollection of the operation after she became conscious. Fourteen days previously she had two teeth extracted by my partner, who administered gas for the operation, without any ill effects. The patient was suffering no apparent pain previous to the operation, except as a result of alveolar abscess. As a result of the operation, the dental pains and facial neuralgia attendant thereon had ceased. The patient came to me three or four days after the incident, and to all appearances was quite well.

Australian Journal of Dentistry.

CHICAGO DIPLOMA MILL MEN IN JAIL.

After four years of defiance of the State Board of Health of Illinois the proprietors of the Metropolitan Medical College were arrested yesterday by United States Marshals on the charge of using the mails to defraud. The institution has been graduating 1,000 "physicians" a year without serious molestation because of the inadequacy of the State health laws.

The arrest of the men is the result of a final effort of the State Board of Health to abolish the "medical" college. The institution was organized in 1895 under the name of the Illinois Health University. The charter for this name was revoked by the board two years later. Immediately the college was reorganized by the same owners under the name of the Independent Medical College. A revocation of this charter in December last resulted in the college being started anew under the name of the Metropolitan Medical College. Finding that the promoters of

the institution had seven charters remaining under which the institution could be conducted, Attorney John A. Barnes, counsel for the board, interested the post-office authorities in the prosecution.

Evidence that the college sold diplomas to persons possessing "superior medical knowledge" was presented to Commissioner Humphrey by graduates of the institution. Dr. Joseph De Barthe asserted that while he was a resident of Baker City, Ore., he bought a diploma from the college through the mails for \$25. He said the diploma had been granted on the representation that it would entitle him to a physician's license in any State. He complained that the diploma was worthless. On coming to Chicago he said he was advertised as a member of the faculty with the title of "Professor of Medical Judisprudence."

The books of the college show, among other things, that the price graduates paid for diplomas varied. Here are some of the "purchasers" and the price paid by each:

Adelfo de Clairmont, Toledo, \$75; W. S. Worley, Cleburne, Tex., \$25; J. C. Riesdon, San Francisco, \$40; S. H. Matthews, New York, \$5; J. B. DuBoise, Sandy Point, Tex., \$10; H. O. Hofstad, New York, \$10; R. C. McCreary, East Prairie, Mo., \$25; A. J. Rimbers, Elbow Lake, Minn., \$20; Leo Berson, Mex., \$20; F. W. Derrick, San Francisco, \$38; R. J. Balch, Seneca, Mo., \$10; J. P. S. Canno, Tex., \$100; Joseph S. Van Nort, Baltimore, \$50; J. T. Carroll, Pryorcreek, I. T., \$30; H. G. Roth, San Antonio, Tex., \$25.

The struggle of local authorities to end this diploma fraud has been as persistent as it has been ineffectual. Meanwhile the fair fame of the city has been injured abroad, especially in England, where the "fake" colleges have been heralded. The evil has even been the subject of discussion in Parliament.

Chicago Daily Tribune, June 5th, 1900.

DENTAL ADVERTISING.

The General Medical Council at its last meeting dealt with several matters of great interest to the dental profession, the results of which, no doubt, will be extremely beneficial when they are carried to their conclusion. But one of their acts, whether regarded as a solitary attack of disciplinary zeal, or the first step

on the road to the reform of the profession, must be regarded as undoubtedly the most momentous decision they have ever pronounced affecting dentists.

Our readers need not be told that we refer to the case of Mr. Arthur Oglesby, whose name was ordered to be struck off the *Register* for advertising, and to the resolution passed by the Council to send to every dentist whose name is upon the *Register* a copy of the resolution adopted on May 20th, 1894, to the following effect:

"That the attention of the Council having been called to the practice of advertising by certain dentists, it is hereby resolved: 'That the issue of advertisements of an objectionable character, and especially of such as contain either claims of superiority over other practitioners, or depreciation of them, may easily be carried so far as to constitute infamous or disgraceful conduct in a professional respect.'"

The case against Mr. Oglesby as presented to the Council is as follows:

(1) That Arthur Oglesby was registered in the *Dentists' Register* on July 10th, 1891, as having been in practice before July 22d, 1878, and his address in the *Dentists' Register* is 21, Cheapside, Barnsley.

(2) That Arthur Oglesby has systematically sought to attract professional practice by the issue of public advertisements of his name, address, appliances, and professional qualifications.

(3) That in particular he advertises himself as D.D.S., University, Ill., which alleged diploma he admits that he obtained without visiting America or being subjected to any examination.

(4) That the public advertisements issued by Arthur Oglesby are highly objectionable.

(5) That Arthur Oglesby states that since the month of September, 1899, he has discontinued the issue of the advertisements which were brought before the committee, but he continues to advertise himself by the issue of an objectionable card in the local newspapers.

The president said the dental committee had agreed to the facts and the Council must take their report as conclusive, the only question was how should they deal with it? Having decided to hear Mr. Oglesby, that gentleman said he had not any idea until last September that there was anything wrong in the course he took. He had never before that date received any warning from anyone, and when such a notice did come he ceased to print any further advertisements and simply issued a card which, if it could be called objectionable, then almost every advertisement

in the land was. The D.D.S., University, Ill., was granted *in absentia* on proof of his skill and knowledge. It was an honorary degree.

This defense, however, did not avail Mr. Oglesby, and the president of the General Medical Council inflicted their highest penalty and ordered his name to be erased from the *Dentists' Register*.

No doubt the Council's decision will be considered, under the circumstances, to be very severe, and that Mr. Oglesby has been made an example of, not only to show that the Council is determined to put a stop to professional advertising, but to make it clear to any offender that he is sinning at the risk of the severest penalties. It seems now impossible to doubt the fact that the Council will take the extreme view of the conduct of any registered man who advertises, and it is to be hoped that those who have offended in the past will take the hint given by the Council and live cleanly as gentlemen should. For there is no doubt if dentistry is to be regarded as a profession, advertising must cease. The advertisements some dentists issue are certainly no different in their nature or higher than those of the tea shop or the boot maker. As Dr. Woods said, it was notorious that the advertisements of some dentists have reached the lowest depths of advertising, and while such cases exist it will be the most difficult thing in the world to make outsiders, whether lay or professional, regard dentistry as a learned profession. There is no doubt now that the General Medical Council regards dental advertising as infamous conduct, and the sooner the state of affairs is recognized by the profession the better for it, and the sooner it will take that rank among the learned professions which it deserves and which those most interested in dental progress wish for it.

The British Dental Journal.

AN UP-TO-DATE REPORT OF PROCEEDINGS OF AN UP-TO-DATE MEDICAL SOCIETY.

Dr. Frank. E. Bunts.

First Surgeon: I have to bring before the members of this society a report of an extremely interesting case of rupture of the liver. The patient was accidentally kicked over a fence by a mule, and fell with his right side striking on a nigger's head. No

symptoms developed for twenty-four hours, when the family, becoming alarmed at the absence of symptoms, I was called in to see the case, and at once diagnosed a rupture of the liver. The signs were somewhat obscure, but an operation made some thirty-six hours subsequent proved the correctness of my observations. The liver and portal vein were carefully sutured, the abdominal wound closed by four rows of sutures—catgut, silk, silk-worm gut and silver wire respectively—and the patient made an uneventful recovery, the stitches being removed on the seventh day, and the patient returned to his occupation as mule driver two days later, or nine days from date of operation. In conclusion, I would say that the chief points of interest in this case are the accuracy of the diagnosis, as well as of the facts in the case, and the most excellent results following a most hazardous and desperate operation.

Chairman: The most interesting paper of Surgeon —— is now open for discussion.

Oculist: I am sure we are very much indebted to Surgeon —— for his most valuable contribution to surgical knowledge, and the case reminds me of a rupture of an eyeball in a well-known man about town, following an attempt to watch all the ballet girls at once. In this case I made a careful examination with the ophthalmoscope, finding marked evidence of blepharospasm posterior synechiæ and choked disc and external strabismus. The treatment consisted of a prompt removal of the eye. The cure was prompt and uneventful, and up to this date he has not attempted again to attend a ballet performance. In conclusion, I again wish to congratulate the author and the society upon his paper.

Gynecologist: The subject under discussion is somewhat out of my line of work, but it is a very brilliant result and reminds me of a case of endometritis fungoidis complicating a Bartholinian cyst in a patient 96 years of age. In this case I removed the uterus and appendages per vagina after excision of the cyst. She made an uneventful recovery, and has since married and feels as young as she did seventy years ago. I thank the doctor for the opportunity which his paper has given me to present this case.

Rhinologist: I cannot allow this opportunity to pass without referring to a case which this valuable report of a rupture of the liver has brought to mind. Some years ago, Mary G. snuffed

a bean up her nose. A careful inquiry at the time failed to reveal the bean, but yesterday, or two years from date of first observation, there appeared an unmistakable bean sprout extending at the anterior nares. I at once diagnosed a sprouting bean and removed it, under cocain. No untoward effect was produced, the patient making an uneventful recovery. The interesting feature in the case was that the patient came from Boston and had probably been addicted to the bean habit for many years. I congratulate the doctor upon his very able paper.

Neurologist: Rupture of the liver must call to mind of all of us that from sudden jars we may obtain ruptures of the cerebral sinuses, or hemorrhage into the spinal canal. In a similar case to that related by the doctor, motor paralysis was present from the moment of receipt of shock incident to receipt of check for an outlawed bill. I made the diagnosis without any difficulty and offered to relieve the patient of the exciting cause. This he refused, and his paralysis was recovered from in time to take in the races the next day. Again I wish to congratulate the doctor upon his very elaborate and painstaking paper.

Second Surgeon: I can but endorse everything that the author has said and appreciate fully the value of the paper. I wish to take exception, however, to the means of diagnosis and to say that from the symptoms related there could not possibly have been a rupture of the liver—nor could he, in my estimation, have sewn up the portal vein without seriously interfering with the functions of the liver and bringing on an attack of the piles. In all the cases of this kind in which I have operated I have made it a point at the same time to dissect out very carefully the pile bearing area. In conclusion, Mr. Chairman, I would say that I hope no one will think from my remarks that I differ in any essentials from the practice of my distinguished confrere.

Orthopedist: During my connection with the Hospital for Cripples I noticed very often and have the records of 150 cases which show the difference in appreciation of pain in different children. In some of the cases of kyphosis a plaster bandage was well tolerated, notwithstanding the formation of decubital sores, extending down to and laying open the spine—while in others bitter complaint was made by the patients and it was necessary to remove the plaster and apply it according to an original method devised by me. The resemblance between these cases and that related in the paper this evening is very marked, and I appre-

ciate the value of this addition to medical knowledge as confirmatory of my own experience at the Hospital for Cripples.

Chairman: As there is no further discussion upon this paper I would say that we are all very much pleased by the elaborate and carefully prepared discussion which it has called forth—and I will ask Surgeon —— to close the discussion.

Surgeon ——: The field of surgery has been so fully covered that I feel it impossible for me to add anything to that which has been already said. *Cleveland Medical Gazette.*

WHAT IS DONE WITH THE BI-PRODUCTS OF MEAT PACKERS.

The great Chicago packing-houses get a great deal more money for the bi-products incidental to the killing of a steer than the meat sells for. On the average the meat and its compounds bring \$40, while the bi-products bring in at wholesale \$55. The latter sum is roughly made up as follows: Hide, horns, hoofs, and hair, \$25; fats, blood, sinews, and bones, \$15; miscellaneous and other wastes, \$15.

It is only in the large and well-appointed slaughter-house that the full value of the animals dealt with can be realized, and these become factories for a great many products, besides finding the proper and most profitable markets for each of the raw products into which they separate the animals. Nothing is allowed to go to waste, and ten years ago one of the largest butchers in the city declared that the Chicago packers were paying the entire cost of slaughtering cattle out of what the butchers here were paying to have carted away. Horns, hides, hoofs, and hair have had their markets for many years and their value increases steadily. This is particularly true of horns, for the practice of dehorning cattle has become so general that in one great Chicago packing-house it was found during a two-year count that the returns only showed one horn to every three bullocks. Horns are now worth about \$150 a ton. The hides go to the tanner, the hair for mixing in mortar. The tails don't go with the hides. Down at the tip is some long hair, and this is said to be turned into curled hair for upholstering.

If the hoofs are pure white they have a peculiar value. They

are sent to China for jewelry making. Those which are striped black, or damaged, go into the kettle to be boiled for glue and the residue made into hoof meat, a valuable fertilizer. In fact, everything which is not used for other purposes is at last turned into some form of fertilizer, even to the tankage water in which the coarsest of the refuse is boiled to extract its fats. The coarse bones are either carbonized and sold for sugar refiners' use or turned into fertilizers, and the blood is mostly dried and turned into another aid to agriculture. Some of the blood is sold in liquid form to sugar refiners, but not a great deal. The white bones, suitable for knife handles and such purposes, bring from \$70 to \$90 a ton, and go mostly to Germany.

The main parts of the animal as they are sent to market are all carefully trimmed, but there is no piece of good meat but has its market. Tongues and tails are regular articles of commerce, and even the meat from the cheeks is added to the supply for sausages, and the lips are cut off and pickled. Each character of fat is separated from the others, and finally these are marketed in the various forms of neat's-foot oil, oleo oil, tallow and stearine, and oleomargarine. Before the horns are sold the pith is extracted from them, and the finest grade of gelatine is obtained from the pith.

The sinews are all separated to be used for glue stock, the bladders are sold for holding snuff, and the greater part of the intestines are used for sausage casings. Parts of these have, however, a special use and value, and are sold separately to be made into goldbeaters' skins. The lining of the windpipe is also of particular value, being used for a fancy sausage casing, and also as a lining for pipes through which beer is passed in breweries. Beef extract, pepsine, and many other things are made in some of the biggest houses.

A new use has recently been discovered for the contents of the paunch, which until lately had to be thrown away. It has been discovered that a good quality of cardboard can be made of it, and it is now being saved for that purpose. Of course, the large receipts from these bi-products are not all profit, but there is a manufacturer's profit made out of each one of them which aggregates a handsome sum, and all of this helps, says the *Retail Butchers' Review*, from which we quote, to keep down the price of the fresh meats to the consumer.—*Dietetic and Hygienic Gazette*.

THE ENAMEL OF COOKING UTENSILS.

A recent case of poisoning at Bordeaux, which resulted in the death of one person and the serious illness of several others, was, in the first instance, attributed to the ingestion of some cream soup which had been prepared in an enameled saucepan similar to those which are now in such general use, and which are coated on the inside with a white enamel, and on the outside with a dark blue one. The poisoning in this instance appears to have been due to a ptomaine; but the case, which excited a good deal of public attention, has led M. L. Barthe to carry out an investigation into the character of the enamels employed for coating saucepans, the results of which are of considerable interest. M. Barthe found but little information in technical works, and, in fact, special analyses of the enamels used for cooking utensils do not seem to have been made. He cites A. Granger, who, in a paper published in June, 1898, upon the pastes and coatings used in pottery, states that the enamels consist of complex silicates, or borates, in combination with potash, soda, lime, or oxid of lead. Binoxid of tin is employed to make the enamel opaque, and so also are arsenious anhydrid, phosphate of lime, and high proportions of alumina. Villon and Guichard, in their "Dictionary of Chemical Industry," point out the danger attending the use of cooking utensils coated with enamels containing poisonous metals, and give the formulæ for several such enamels, in all of which oxid of lead is one of the constituents. In 1896 O. Emmerling published in the "Berichte" an analysis of an enamel intended for domestic utensils, showing that it contained 52.51 per cent. of oxid of lead, and 3.74 per cent. of arsenic acid. M. Barthe appears only to have himself examined the enamels respectively removed from four saucepans. These were the saucepan in which the soup which caused the poisoning at Bordeaux had been prepared, another taken from the same place, and the other two respectively purchased in a shop and in the street. The enamels were easily detached in thin laminæ by a few heavy blows with a hammer on the bottom of the saucepans. They were powdered in an agate mortar, and at least two fusions with the usual fusion mixtures were necessary to obtain complete disintegration. The four enamels were found to be similar in composition, and to consist mainly of silica, tin, and alumina, with small proportions of zinc, lime and potash, and traces of iron and cobalt. A trace of manganese was found in one case.

Lead, boric oxid, and arsenic were entirely absent. These enamels were fusible with great difficulty, but there is no doubt that many others are used which are easily fusible, and which contain oxid of lead and other dangerous ingredients. Dr. G. Ambühl, the official analyst for the canton of St. Gall, Switzerland, in his report for 1897, calls attention to the fact that certain itinerant workmen make use of preparations largely composed of oxid of lead for enameling cooking utensils, and states that a preparation of this kind used by a local enameler at St. Gall was found to contain 35 per cent. of oxid of lead. It is certain that similar facts would be revealed if the matter were looked into in this country. The necessity of prohibiting the use of dangerous or injurious materials for making or coating cooking utensils and vessels intended to contain food, should not be lost sight of by the Legislature. *British Food Journal.*

ULCERATION OF THE GUMS IN MIASMATIC FEVERS.

During the war in our island—our war for independence—I had the opportunity to observe its pathological effects.

The war terminated; almost all of those who took part in it were attacked by a species of chills and fever, and in the majority of revolutionists, on account of lack of medicines and food, anæmia made great progress; on account of this anæmia ulceration of the gums, fetor unsupportable, painful and difficult mastication, and slight hemorrhages were the result.

The infirmity presented itself in the form of small ulcerations on the gums, and if not cured in time these ulcerations attacked the throat, cheeks and soft palate.

In view of these symptoms I employed disinfectants and astringents, such as tannic acid, permanganate of potash, tincture of rhatany, borate of soda, etc., and the caustics, such as iodine, sulphate of copper, nitrate of silver, etc.; but none of these gave me satisfactory results, so that days and days passed without realizing either cure or alleviation.

Among other experiments I prepared an official solution of chromic acid, crystallized—one part of acid, one part of distilled water, and afterwards diluted with two parts of water.

Before undertaking the cauterization I prepared a concentrated solution of cocain, and with a brush I lightly painted the affected parts to produce slight anæsthesia. Taking a fine instrument I wrapped it with a film of cotton, and dipping this into the acid I carefully touched the affected parts of the gums.

I repeated this operation every two days, maintaining the aseptic condition of the mouth with the following wash:

R. Acid boric.....	1 gramme.
Listerine.....	30 "
Honey.....	20 "
Decoction of quinine bark.....	300 "

In four days the patients found themselves practically cured.

Among my patients one who had been attended a long time by a physician became wearied and solicited my services the first of the week; by Thursday he could eat food with ease, which greatly astounded him, as he had only partaken of milk for twenty-two days.

It is my opinion that any morbid growth or affection of the mouth, excepting malignant tumors, can be cured by these therapeutic agents.

*Dr. Manuel Ignacio Polo, Dentiste, Trinidad, Cuba,
In "La Revista Dental Americana," Marzo, 1900.*



THE DENTAL BRIEF.

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WILBUR F. LITCH, M.D., D.D.S., EDITOR.

EDITORIAL.

THE RACE PROBLEM.

The letter from Dr. Houston, of Corsicana, Texas, published on another page of our current issue, invites renewed attention to the grave sociological problem involved in the present and future relations of the white and black races in America.

Specifically, Dr. Houston enters protest against a statement in the chapter on miscegenation which forms a part of Dr. A. H. Thompson's paper on "The Causes of Congenital Defectiveness and Deformity of the Teeth" in the *American System of Dentistry*.

In justice to Dr. Thompson the passage to which exception is taken should be read in connection with the context, and for this reason the entire paragraph in which it occurs is here reproduced:

"The ethnological problem of the ultimate effect of the total absorption of the negro race in the United States is a most serious one. Its effect upon the population at large does not yet amount to much, but general absorption by the white laboring classes of the South and West, such as is going on, cannot be without momentous results. The destiny of the negro in this nation is absorption by intermarriage with the white race. As race prejudice dies out intermarriage will become more frequent. Even now the union of negro men and white women in the Southwest is not uncommon. As the negro blood is far from pure, and as the whites with whom they chiefly intermarry are of the

vicious and impure classes, this miscegenation is an unmixed evil. Even the mongrels who come down to us from slavery days, and who are the result of crossing with comparatively pure white blood, are a degenerative people. So we conclude that the crossing of the negroes and whites is not for good, and this is demonstrated by the physical and moral degeneracy of the hybrids resulting from the combination. Regarding their dental organization it is of the worst. The American negro is saturated with scrofula, with which every individual is more or less tainted, and this crossed with the weakness of the white races does not contribute to good dental organization. Very few mulattoes are found who possess good teeth; many of the pure negroes do, however. One cause of their degeneracy may be found in the fact that, like the white races, they too are a foreign race in a strange land, not yet acclimated and harmonious with their environments. With no influx of pure blood flowing into their veins from the native land of the blacks, degeneration and absorption is their destiny. As the negro blood becomes weakened and attenuated by further mixture with the superior white blood, the racial features gradually disappear, the last trace to vacate being a constitutional pulmonary weakness."

That Dr. Thompson is far from being an advocate of miscegenation is of course self-evident. That he was mistaken in his prognostication as to the future destiny of the negro race in America is probable. That he overestimated the frequency of intermarriages between negro men and white women in any portion of the South is not to be questioned. Such marriages, either in the North or South, are absolutely exceptional; in the South they are forbidden by law and are regarded with horror and indignation, and in the North, although not illegal, they are by all classes looked upon with amazement and reprobation.

The theory that absorption of the negro by intermarriage with the white race is to be the solution of the race problem can hardly have found much acceptance even at the time when Dr. Thompson's paper was written, but in the light of our national experience since that time, and of our present knowledge, it is a theory which must be recognized as entirely untenable.

There is an alluring glamour about a broad generalization which often blinds us to the specific fallacy it conceals, and blinds us to our undoing. Humboldt's affirmation, in *Cosmos*, that

"there are some races more cultured and advanced and ennobled by education than others; but there are no races nobler than others" is a generalization which, though based upon a fallacious sentiment rather than upon a reasonable deduction from the recorded facts of human history, was once widely accepted, and, with kindred utterances, has been made the basis of political action now recognized as unwise and mistaken.

If the philosophy of history and the laws of physiology teach anything it is that some races are so far inferior to others that any admixture of blood must result not only in the deterioration of the superior, but generally in the loss of the better qualities of the inferior strain.

The physical degeneracy resulting from such racial contaminations is obvious and unquestionable; it is a degeneracy dependent not merely upon the admixture of inharmonious anatomical elements, but upon the unwise blending of those psychical forces through which types are determined and character formed.

That such considerations are sometimes disregarded when animal passion dethrones judgment is most true; but such unions, even when moral, in the sense that they are not illicit, are immoral in the sense that they are subversive of the well being of the individual and of the race. Hence whatever may be the ultimate solution of the race problem it cannot and should not be miscegenation.

Dr. Houston's assertion that instead of diminishing, race prejudice is increasing in the South is doubtless fully warranted by the facts; and the statement is unfortunately also applicable to the North. Indeed the assertion may be safely ventured that in the Northern States the prejudice partakes far more of the character of personal aversion than among the people of the South, whose prejudices are those of a ruling as opposed to an inferior class. Their personal relations with the negro as a subordinate or dependent are far more cordial and sympathetic than is usual with those of Northern birth and breeding. While the

negro since his emancipation and enfranchisement has looked to the North for at least abstract sympathy with his political aspirations, he still finds that he must look Southward for a sympathetic recognition of and a true affection for all the better qualities of his child-like nature.

That, as with all childhood, the negro, as a race, when unrestrained by discipline and untrained by the moulding force of a superior will inevitably reverts to lawlessness and barbarism is a fact demonstrated by the whole recorded history of his race, not only in his native habitat but in all lands to which he has been transplanted.

A general recognition of the fact that the negro's is a child race, with the undeveloped understanding and undisciplined will of childhood, would seem to be essential to a wise solution of the race problem in America. With a fuller realization of this truth will come a truer comprehension of the duty imposed upon the nation to whose guardianship and guidance the negro has been consigned.

That duty is not to entrust him, to the undoing of society, with political powers for whose independent and unrestrained exercise he is at present, as a race, unfitted, but to train him along industrial lines, for the fuller and more perfect fulfillment of those social obligations which are essential alike to his own growth and development and to the welfare of the society of which he has been made a part.

In America the burden of this task falls most heavily upon the people of the South, where the negro is found in greatest numbers, and where, owing to climatic conditions, he is most valuable as a laborer. The growing hostility of the white laboring classes of the South to their negro competitors still further complicates a problem already full of difficulty. If, however, as Dr. Houston intimates, the North has tears to shed regarding this racial enmity, it would be well to reserve a goodly portion of that lachrymal outpour for home consumption; for here a similar spirit of race antagonism to a great extent bars the negro from

acquiring any skilled handicraft whatever, and here, too, owing to his relative inefficiency, he is rapidly being supplanted even as an unskilled laborer by competitors of foreign birth.

Notwithstanding these discouraging features of the situation it is not well to take too gloomy a view of the future of the colored race. To-day the vast agricultural interests of the South are carried on chiefly by his labor. It is a transition period, and there is of course friction and abundant cause for reciprocal complaint as between employer and employed; but this is also true of similar relations the world over.

The establishment of industrial schools at Hampton, Tuskegee and elsewhere in the South for the practical training of the negro in industrial arts is an educational movement whose effects are already far-reaching and beneficent, and which should receive abundant support not only from State and National governments, but through the individual contributions of all well wishers for the colored race, both North and South. For the furtherance of a movement so important and so necessary to the welfare of society the people of both sections can and should unite in hearty coöperation.

The softening influences of time and the logic of events have cleared away many of the causes of sectional misunderstanding and enmity. France has in her literature no aphorism more benignant and beautiful than this, that "to comprehend all is to pardon all." With a mutual recognition of the fact that men are moulded by, quite as much as they are moulders of circumstance; that the primal forces which determine action are often as remote and impersonal in their origin as they are imperious in their influence and incalculable in their effects, and that motives of highest worth may inspire the most mistaken courses of action, there should surely come a final obliteration of animosities which were nurtured into virulency chiefly because these broad and elemental truths in the philosophy of human existence were ignored by the violence of passion or contemned by the narrowness of creeds. "*Tout comprendre, c'est tout pardonner.*"

DR. THEODORE MENGES.

To a large and widening circle of friends, both lay and professional, the announcement of the death of Dr. Theodore Menges will bring with it a keen sense of personal loss.

In dentistry he was not known so much as a practitioner as a teacher and organizer, his career being inseparably associated with the great and successful school which was raised from comparative obscurity largely by his energy, executive ability and wise judgment in the selection of educational associates.

Dr. Menges was thoroughly and typically American. His active participation in business affairs previous to entering upon professional life had given to him a breadth of view and knowledge of men and affairs which, joined to his experience in pedagogy, stood him in good stead in college work. Although a shrewd business man and eminently practical in his methods, he knew the value of judicious liberality, and hesitated at no expenditure, as he spared no labor, when a purpose was to be promoted or an advantage to be gained.

Endowed with a wealth of vital energy, a forceful will and dauntless courage, the opposer might well beware of him when confronted by the fierce ardor of his championship of a cause in which his heart was enlisted, for when the fight was on he was a foe to be feared as well as a friend to be trusted.

With a full measure of devotion he gave ungrudgingly of his time and labor for the furtherance of the interests of his profession. Especially in association work, in which his zeal and industry were so indefatigable, will his death leave a void not easily filled.

As a frontispiece to the present number an excellent half-tone engraving of Dr. Menges will be found, and the leading details of his life and work are briefly outlined upon another page.



OBITUARY.

Dr. Theodore Menges, Secretary and Business Manager of the Northwestern University Dental School of Chicago, died in that city at 8.20 P. M., June 1st, 1900. On Friday, May 25th, he was seized with severe pain in the abdominal region, which on the Sunday following was diagnosed as appendicitis, and an immediate operation decided on. The operation confirmed the correctness of the diagnosis, but was followed by septic peritonitis. His strong constitution enabled him to rally from this condition, and on Wednesday he appeared to be on the road to recovery, but the conditions became more serious that night and on Friday, one week after his first attack, another operation was necessary to relieve an obstruction. He sank rapidly after this and died the same night.

Dr. Menges was born of German-American parents, near Bristol, Ind., May 2d, 1854. He received his education in the country and normal schools of that section and at once became identified with educational work, soon finding congenial employment in the position of Superintendent of the Normal School, which, under his able management, prospered and assumed a very prominent place in the list of such institutions. This, however, was not attained except through friction and opposition such as men of strong convictions invariably excite.

About the year 1883 he removed to the far West and engaged in real estate and mining operations in Wyoming and Nebraska, where he was very successful, locating the sites of several thriving communities; most prominent among these was the town of Kimball, Nebraska, which he located and made the county seat, in the face of violent opposition from men whose interests were in another direction, and who opposed Dr. Menges even with drawn revolvers. He returned to Chicago seven years later and entered the American College of Dental Surgery, from which institution he graduated and assumed its control in 1892.

Through his energy and skillful management this school prospered and assumed a place among the leading colleges of the West, and in 1896 was consolidated with the Northwestern University Dental School, assuming the name of the latter institution, Dr. Menges retaining the business management.

Under the influence of his unbounded enthusiasm and energy and by his business methods the consolidated school in-

creased in extent, adding constantly to its equipment and the number of its students, until it is now acknowledged to be one of the leading institutions of dental education in the world.

For a number of years past he was a strong advocate of higher requirements and more advanced preliminary training for students of dentistry, and conscientiously carried out his views in the institution to which he gave his ripened judgment and the most fruitful years of his life. The very last work he was engaged upon before his final illness was the preparation of a paper on "Dental Education," which was to have been read before the Kentucky State Dental Society, at its recent meeting in Louisville. It is said, by one to whom Dr. Menges read it, to be a masterly paper, and it will undoubtedly be published soon.

He was a member of the Chicago Dental Society, Odontographic Society, of Chicago; the Illinois State Dental Society, and chairman of the executive committee of the National Association of Dental Faculties.

Dr. Menges leaves a wife, but had no children.

The funeral services were conducted by the Rev. H. W. Thomas, at Unity Church, corner Dearborn avenue and Walton place, and the body conveyed from there to Graceland cemetery, where at his request it was cremated, the ashes placed in a casket and taken to his old home near Elkhart, Ind., and placed in the family lot in Zion churchyard.

F. L.

CORRESPONDENCE.

DEAR DR. LITCH:—On page 362, Vol. 3, "American System of Dentistry," Dr. A. H. Thompson, in speaking of the destiny of the negro and his absorption by the white laboring class of the South, says:

"As race prejudice dies out intermarriage will become more frequent. Even now the union of negro men with white women in the Southwest is not uncommon."

He surely made this statement from hearsay, and not from observation.

Practically all the Southern and Southwestern States have laws—very rigidly enforced, too—forbidding the intermarriage

of the races. The facts are that to-day, about fourteen years, I suppose, after Dr. Thompson's writing, race prejudice instead of dying out is intensified all the time. The only white woman who will have anything to do with a negro is the prostitute of the very, very lowest class. A respectable negro, man or woman, would not marry a white person; but a black negro almost always marries a light-colored one. And this suits the light-colored ones; for they seem to prefer a black one to one of their own shade.

It is true there is a constant mixing of the races; but they are bastards—the offspring of white men, of the lowest class, and negro women.

And the laboring class, of which Dr. Thompson speaks as mixing with the negro, would be the last to do so, legitimately. For if the negro has an enemy in the South—over which fact the North sheds so many tears—it is that class.

So I wish to enter a protest against that passage, as an injustice to both the negro and the Southern laborer, and hope that when the "American System of Dentistry" is revised it will be stricken out; in which I think every Southern, and every other dentist acquainted with the facts, will join.

Yours truly,

Trim Houston, Corsicana, Texas.

ANNOUNCEMENTS.

BIENNIAL MEETING OF THE NEW BRUNSWICK AND NOVA SCOTIA DENTAL SOCIETIES.

All members of the profession who can possibly do so are invited to attend the joint biennial meeting of the New Brunswick and Nova Scotia Dental Societies which will be held in St. John, N. B., on the 29th of August next, when a program of especial interest, information and sociability will be carried out during its three days' session.

The dental manufacturing companies and supply houses will exhibit at this meeting.

Frank A. Godsoe, Registrar,

Council of Dental Surgeons, N. B.

THE TEXAS STATE DENTAL ASSOCIATION.

At the fourth annual session of the Texas State Dental Association, held at Dallas, May 15th to 17th, the following officers were elected:

Dr. O. B. Love, San Angelo, President; Dr. H. L. Pearson, McKinney, First Vice-President; Dr. J. M. Nash, Brenham, Second Vice-President; Dr. J. G. Fife, Dallas, Secretary and Treasurer; Dr. A. F. Sontag, Waco, Curator of Museum; Executive Committee, Dr. L. P. Robertson, Marlin, Chairman; Dr. Samuel G. Duff, Greenville; Dr. Bush Jones, Dallas.

Next convention at Sherman, the third Tuesday in May, 1901.

J. G. Fife, Secretary.

PATENTS OF INTEREST TO DENTISTS RECENTLY GRANTED.

649424, Manufacture of tooth crowns, Aaron E. Adams, assignor of one-half to E. L. Truelove, Ardmore, I. T.

649717, Gas-administering apparatus, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.

649642, Shaft-coupling for dental engine handpieces, Roscoe F. Ludwig, Chicago, Ill.

649854, Dentist's mouth-dilator, etc., John A. W. Lundborg, San Francisco, Cal.

649742, Dental forceps, Benjamin B. Mories, Markesan, Wis.

649624, Manufacture of artificial teeth, Friederich A. Wienand, Pforzheim, Germany.

650350, Dental impression tray, Louis A. Block, assignor of one-half to R. C. Graham, Chicago, Ill.

650042, Dental chair, Abraham L. Gilmer, Alamosa, Cal.

650088, Dental instrument, Alfred D. Hoag, Philadelphia, Pa.

650153, Dental tray, Charles McLearn, assignor to A. I. Wyatt and R. C. Graham, Chicago, Ill.

650260, Dental trimmer, Charles F. C. Mehlig, New York, N. Y.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall Building, Washington, D. C.

Questions and Answers.*

Question 94. What surgical treatment is indicated in a severe case of trifacial neuralgia, and what are the results from such operations? In what per cent. of cases does the extraction of teeth afford permanent relief?

The surgical treatment for true facial neuralgia consists in resection of the nerve or nerves involved, or by a direct operation on the ganglion. Dr. W. W. Keen, a recognized authority on such conditions, favors in most instances peripheral resections, and claims that they should be done early, before the disease has had time to invade the ganglion. Early operations, say after a month or two of ineffectual medication, may in some instances result in a permanent cure. After the experience of very many operations, Dr. Keen is of the opinion that the relief obtained is seldom permanent. In severe cases the temporary relief obtained is so gratefully received that the patient readily submits to a succession of operations. In some instances a year may elapse without a recurrence of pain, in others but a month or so, and very frequently no relief is obtained. When the Gasserian ganglion is operated upon, Dr. Cushing believes that the possibility of non-recurrence of pain after operation depends to a great degree upon the degree of entirety with which the ganglion has been removed. In the *Philadelphia Medical Journal* for May 12th, both Drs. Keen and Cushing report the results of a number of cases, including both peripheral resection and direct operation upon the ganglion, but the results are anything but encouraging. Out of nine cases reported but a single one appears to have been permanently successful.

The writer has in mind the case of a gentleman now seventy-five years of age, who has for forty years been a constant sufferer from trifacial neuralgia. Many operations have been performed, but the relief each time is but of very short duration. In reply to the second question it may be said that very few, if any, cases of true trifacial neuralgia are of dental origin, and a protest

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

should be entered against the useless extraction of teeth with a view of obtaining relief. Of course the dentist must feel confident in his ability to distinguish between a case of dental neuralgia and one of facial neuralgia, the former having its origin and continuance in some pathologic condition of a tooth pulp, while the latter is confined to the substance of the nerve fibre. One very interesting feature of Dr. Keen's report is the result of the microscopic examination upon nerve fibres thus affected. These were teased and stained by a one per cent. solution of osmic acid, and found to contain numerous black balls, varying but little in size, and placed at remarkably regular intervals along the edge of the fibre, leaving the center free from such obstruction. It would appear from these reports and others of like character that about the only value from surgical operations in such conditions lies in the hope of temporary relief.

Question 95. I would like your opinion on the following case. A lady aged 37 (anæmic) has only the eight anterior lower teeth in her mouth. The mesial surface of the left cuspid is decayed to the extent of causing pulpitis, and she seeks dental aid. A full upper and partial lower denture are placed in the mouth. The cuspid is treated by devitalizing with arsenic, the pulp being removed with a Gates-Gliddon drill, as I could readily get at the canal. The canal is filled with cement carried on a few fibres of cotton. This much of the work was done on Friday. On the following Tuesday a gold filling was placed over it. Five weeks afterward the patient returns with the tooth in an extremely sensitive condition, the gums inflamed and having excruciating pain. Aconite and iodine were applied as counterirritants. After the tissues were locally depleted, antikamnia was given to allay pain and the patient was advised to take hot foot-baths before retiring. In the morning swelling had begun and hot applications were applied in the way of hot raisins and hot water. The following morning fluctuation was noticed, and on lancing pus bubbled up through the newly-made exit. Periostitis is now established, resulting in a necrosis of the immediate jaw and the adjoining teeth. The question is, could anything have been done which would have positively and infallibly prevented this condition?

Question 96. Has there been an attempt made to establish reciprocity in regard to professional fees between the dental and medical professions? Also, what is the prevailing custom in regard to a charge for professional services rendered a minister of the gospel?

It is quite probable that many attempts have been made to establish such a fee system in certain local districts, and that it

has met with more or less favor. In the rural districts it is a common practice, even at the present time, for physician and dentist to exchange professional services regardless of a money consideration. So far there has been no attempt to establish such reciprocity between the two professions in general, and it is not likely that such an arrangement will ever take place. Such a system would be impracticable. While the two professions are closely allied, the character of the service rendered by the dentist differs so vastly from that rendered by the physician that no just comparisons as to their relative value could be computed. For very many years it was the custom among many dentists to make no charge for services rendered a minister of the gospel. In most cases this applied only to the head of the family, in others it extended to the wife and children and in some instances to the near relatives. This practice was probably instituted at a time when the minister received the greater part of his earthly reward in donations of various kinds from members of his congregation. At the present day there would appear to be no just reason why a minister of the gospel should not pay for the healing of his dental lesions. In former times the physician or dentist gave as his share to the support of the pastoral district his time and his services, to-day his contributions are for the most part made upon a cash basis, a goodly portion of which is paid to the minister in charge in the form of a fixed salary.

In reply to Dr. Zinkan in the May issue of the "BRIEF," who inquires as to the methods of making a successful denture for a mouth in which the palate is very flat and hard, and many of the soft tissues come almost to the bottom of the ridge, it may be said that a perfectly satisfactory denture under such adverse conditions is in very many instances an impossibility. This is particularly true when both the labial and buccal frenæ are given off from the summit of the ridge. The first condition referred to, the flat and hard palate, is of itself somewhat of a barrier to success, but when the two are in combination, the result is a complication difficult to cope with. With a hard, flat palate care must be taken when securing the impression not to allow the slightest lateral movement while the plaster is setting, in fact an absolute fit is the only means of success in such cases.

The fact that the palate is hard does not interfere with the result in the least, providing it is equally hard all over, and a

perfect reproduction of the palate is made on the plate. With a palate of equal hardness all over, no scraping of the cast is called for. The same relationship and conditions must exist between the hard palate and the hard surface of the plate as that found where two hard flat surfaces are held together by atmospheric pressure, *i. e.*, perfect contact, and almost complete absence of air. These features, and no others, can be depended upon to bring you success in the class of cases to which you have referred.

The operation of cutting the frenæ is sometimes resorted to, particularly when they are isolated and well defined, but when all, or nearly all, of the soft tissues are in the way, completely destroying the vestibule of the mouth, there remains but little choice in the manner of procedure save that already mentioned. A plate made with a flexible rubber rim sometimes gives comparative satisfaction.

In regard to the second clause of your question, such appliances should be so constructed that very few, if any, irritating points are left exposed. When a screw and nut are used they may be temporarily covered up by a small piece of rubber tubing, sufficiently small to slip over and hug tightly around the parts. In other cases, where it is impossible to finish the appliance without leaving some irritant points, and the parts are immovable, they may be covered up with a good phosphate cement.

Practical Points.*

To Hasten Setting of Cement.—A small proportion of powdered borax added to the cement mixture will cause it to set quickly and give a hard and tenacious cement product.

B. J. Cigraud (Translation), Dental Review.

Immediate Root-filling (from the Financial Point of View).—Confidentially, from the financial point, the method is not a success. When I spend two hours over a patient and end by filling with gutta-percha, the patient is generally dissatisfied with the charge, and may exclaim: "Why, Dr. So-and-So treated my tooth for three months and only charged half as much!"

F. Milton Smith, International Dental Journal.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Oral Hygiene.—No labor performed for a patient is more valuable nor worth a greater price than the time given to properly impressing and teaching in every detail the routine of ordinary oral hygiene. *M. L. Rhein, Items of Interest.*

"Big Words."—"They are the dried catnip of literature. Like bunches of herbs hanging on the rafters of housewives' garrets, they swing and rattle in empty heads, giving forth only an ancient medicinal odor."

Edmund Andretos, M.D., Journal American Medical Ass'n.

Hemorrhage After Pulp Removal.—Insert a pledget of cotton dipped in "Pond's Extract" (hamamelis). Renew once or twice or until there is no trace of blood. Then apply absolute alcohol, dry the canal thoroughly and fill.

Chas. L. Hungerford, Western Dental Journal.

Ethocain.—This is a 12½ per cent. solution of beta-eucain hydrochlorate in ether, and as an obtundent in sensitive dentin. The advantages over all the cocain solutions are (1) 80 per cent. less toxic action; (2) permanent solution; (3) does not irritate when applied to the tooth.

Report of Committee on Materia Medica,

New Jersey S. D. Soc., Items of Interest.

The "Fish-line" Method of Wedging.—When the teeth are snugly in contact at the masticating surface with a V-shaped space at the gum, pass a piece of doubled waxed floss silk between the teeth, leaving the loop sticking out. Into this loop the fish line (grass line) of the size decided upon is threaded and drawn through. The two ends of the line are then tied with a square knot a little to one side of the masticating surface. Sufficient space for filling may often be gained in twelve hours with but little soreness, but the line will continue swelling for two or three days, when extensive wedging is needed.

S. E. Davenport, International Dental Journal.

The X-Rays and Vulcanite Plates.—A woman having died from swallowing a small plate carrying two teeth, and the statement made that a plate of vulcanite "would be transparent to the X-rays and hence could not be localized," the matter was tested as follows by Henry Blandy, L.D.S.: A number of old vulcanite plates, a metal plate, and other articles were arranged on a Röntgen plate, when it was found that red and pink vulcanite show as distinctly as metal—black vulcanite less so, the teeth and platinum pins being perfectly definable in all the cases. A knowledge of this fact may be used to prevent cutting in the dark and exploratory incisions in future similar cases.

Dental Record.

To Remove Vulcanite from Between the Teeth.—Mount a stiff, fine needle in a small handle or broach holder; sharpen on two sides and you have a useful little tool.

A. E. H. Leister, Items of Interest.

Porcelain Inlays. Selection of Color.—Selecting the color after the tooth has been dried under the rubber-dam is always misleading. The color must correspond with that of the tooth in its natural moist condition.

N. S. Jenkins, National Dental Association, 1899.

Filling the Hypodermic Syringe.—Drop a small piece of absorbent cotton into the fluid to be drawn into the syringe. Press the syringe against the cotton, thus filtering the solution; there will be no specks to stop the syringe and less risk of after-irritation.

Welch's Dental Magazine.

Overcoming Recession of Gum Tissue.—In case of recession of the gum over the root of an anterior tooth to be crowned, make a horizontal incision and put in a stitch in the part of the gum below the incision, tie it close to the tooth, the idea being that the gap will fill in with granulations.

Dr. Nase, Dominion Dental Journal.

Introducing Cement Into a Pulp-canal.—To prevent the cement from drawing away with the instrument moisten a small square of blotting paper with aromatic sulphuric acid and pass the face of the instrument over that, slightly moistening it. The cement may be forced up with the instrument and will not be drawn away.

J. W. Beach, Dental Cosmos.

Treatment of Abscessed Deciduous Teeth.—Cleanse canals as thoroughly as possible. Fill pulp-chambers with cotton saturated with oil of cloves, and by means of unvulcanized rubber exert pressure on cotton until oil of cloves is forced through sinus. Then flood cavity with solution gutta-percha in eucalyptus and force temporary stopping into each canal until the eucalyptus appears at fistulous opening. Will rarely give any further trouble.

C. N. Johnson, Niagara Falls, 1899.

To Keep the Hands Soft and White.—To counteract the effects of frequent immersions in antiseptic solutions the following will be found one of the very best of formulas:

R. Ol. rosæ.....	gtt. xv.
Glycerin.....	3i.
Spts. myrciæ.....	3iii.
Ol. cajuput.....	gtt. xx.

M.—Apply at night before retiring, first washing the hands thoroughly in hot water. ^aIn cold weather apply before going out.

Journal American Medical Association.

To Make Smooth Cavity Margins.—Take an ordinary fine-cut plug-finishing bur of suitable size (I use half worn-out burs), dip in water and then in coarse carborundum powder. Use in the usual way, dipping it in the water and powder as often as necessary. Faster and better than any diamond burs.

W. C. Graystone, Items of Interest.

Insert Dentures Immediately After the Extraction of the Teeth.—Frequent use exerts an influence in maintaining the shape of the jaw, the presence of dentures preventing the degeneration of the facial and masticating muscles, the jaws consequently retaining longer the form characteristic of adult life.

W. H. Dolomare, Journal British Dental Association.

Second Soldering.—When a second soldering becomes necessary place a piece of lower karat solder than was first used in mercury until the surface is slightly amalgamated. It will flow readily and the mercury being sublimated in the heating the appearance of the finished piece is the same as it originally was.

American Dentist.

The Deciduous Molars.—If thoroughly exposed the pulps will die, but probably painlessly, and the tooth may remain comfortable for some time. If the deciduous second molars can be held in place at almost any cost until the first permanent molars have come through, and are well articulated, this should be done.

C. Edmund Kells, Welch's Dental Journal.

Root-canal Filling.—Dr. Pruyn, of Chicago, has recently adopted the method of filling canals with sandarac varnish and gutta-percha points, his theory being that the varnish follows the remaining alcohol used for drying out; the results seem very good, the varnish appearing to enter all the openings of the canaliculi.

J. M. Wallis, Dental Review.

Root-canal Filling.—A deviation from the usual method of filling with chloro-percha and gutta-percha. A gutta-percha cone is first placed in the canal and then the chloro-percha is applied, dissolving the point; another point is then inserted and forced to place, insuring the complete filling of the root without danger of confining air in the canal.

J. J. Wright, Dental Digest.

Reproduction of Gum Tissue.—Irritate the gum with a metal band to stimulate granulations, and protect the parts with rubber hood so as to allow granulations to organize. Retain the band and hood with silk ligatures and examine about once a month, stimulating with the application of a solution of nitrate of silver 3i or 3ii to the ounce of water. With time and patience good results can be obtained.

Geo. T. Carpenter (Clinic), Dental Review.

Miscellany.

A Man With a Quiver Full.—A French Canadian living in Rhode Island was recently presented by his third wife with his forty-first child. His first wife gave birth to several pairs of twins, and his second presented him with three sets of triplets. Thirty-six of the children are living and many of them have families of their own. Eight of the grandchildren also are parents.

The Age of Medical Graduates in Japan.—A Japanese paper, the *Jiji Shimpo*, finds reason for lamentation in the fact that whereas medical students in Europe graduate at twenty-two or twenty-three years of age, in Japan the age is over twenty-six. The paper in question points out that Japanese mature and age earlier than in Europe, and that as the period of usefulness in life in Japan is considered to be over at fifty, the period of active labor is short. In Europe a man is usually at his best at fifty, and even at sixty, seventy and over, grave and reverend seniors are not looked upon as uselessly harrang the way of ambitious juniors.

Journal of Tropical Medicine.

Fused Silica.—Silica is now being extensively used in many physical investigations, and since its manipulation in the oxy-hydrogen blow-pipe has been understood, its value is the more appreciated. That quartz could be drawn out into fibres was first noticed by M. Gaudin in 1839, but the fact was not made use of until 1887, when Prof. C. V. Boys rediscovered the process of making quartz threads and applied them to a number of uses. Since that time quartz tubes have been made, and also bulbs suitable for thermometers. The silica used for this work is rock crystal, which, when perfectly clean and freed from outer impurities, is heated in a vessel containing boiling water, and then suddenly immersed in cold water. This cracks the crystal and makes possible its division into small masses, which must be carefully examined to make sure that there is no foreign matter present. The selected pieces are then heated in a platinum dish to a yellow heat and are quickly thrown into deep cylinders containing distilled water. This process is repeated and the quartz is found to have a semi-opaque appearance, similar to white enamel. It can now be used in the blow-pipe flame, and the manipulation is somewhat similar to that of glass. It is possible to construct Geissler tubes, small distilling tubes, and thermometers of silica, but as yet a way has not been found of soldering electrodes into the tubes. Emerald also gives threads, and they are said to be even more tenacious than those of silica.

How Frozen Meat Deteriorates.—Meats frozen and kept in cold storage for long periods do not undergo organic changes in the ordinary sense—that is, they do not putrify, soften, or smell bad, but they certainly do deteriorate in some intangible way. After a certain time frozen meat loses some life-principle essential to its nourishing quality. Such meat lacks flavor; it is not well digested or assimilated. Its savorless condition cannot be remedied or successfully disguised by the use of sauces and condiments. Those who eat cold-storage food for any length of time develop diarrhoeal disorders, lose in weight, and would eventually starve to death unless a change of diet was made. The same reasoning applies to tinned fruits and vegetables. They should not be used after a certain period has elapsed. Especially should people be warned against using stale eggs and old milk and cream. Milk and cream are kept for days, rancid butter is washed and treated chemically, but all food, and especially cold-storage food, is damaged by long keeping, and will not nourish the body properly. There is the greatest abundance of food, but it does not satisfy.

Sanitary Record.

Largin for the Eye.—Marczel Falta reports (*Wiener klin. Rundschau*, January 21st, 1900) on the newest of the silver preparations, namely, largin. Heretofore, protargol possessed marked superiority over its fellows, both in the percentage of silver and in its general therapeutic properties. Largin, however, has superseded it, inasmuch as it contains fully 11 per cent. of silver, whereas protargol has but 8 per cent. Not only in this respect does largin merit consideration, but it also far exceeds protargol (Pezzoli) in its germicidal powers. Indeed, even the nitrate of silver suffers in comparison with this preparation. A solution of 1-4000 of largin will kill the gonococci of a pure culture in ten minutes, while neither silver nitrate 1-2000 nor protargol will accomplish this. Pezzoli has demonstrated that none of the other silver compounds has such a power of penetration as has largin. The power of the tissues to take up this drug is one of the chief reasons for its successful use, especially in cases of conjunctivitis and diseases of the lachrymal ducts. The eye can readily bear a solution of 10 per cent. strength, although a slight inflammation, evidenced by reddening and a little pain, is caused thereby. Instillations of largin several times daily are recommended in severe conjunctival affections with large amounts of secretion. The secretion rapidly diminishes in amount, and a return to the normal condition follows. In cases in which both protargol and largin have been used, the author prefers and recommends the latter. The only drawback is a slight inflammation following its use. This is caused by its alkalinity, which, instead of being baneful, is in reality of great use to the drug in its therapeutic application.—*Med. News.*

Cause of Cancer.—An interesting contribution to our knowledge of the etiology of cancer is given by A. Adamkiewicz (*Klin. therap. Woch.*, March 18th, 1900). This author holds to the parasite theory and considers the cancer-cell to be not a typical epithelium, but a species of coccidia which infects those parts of the body most closely in contact with the outer world. Several instances are quoted in which the mere sting of an insect was followed by epithelioma of full malignancy and in which irritation or diminished resistance of the parts involved could not explain the lesion. The fact that gastric and intestinal cancer is endemic in certain parts of France where stagnant water is used in the manufacture of cider seems to corroborate this theory.

Medical News.

American Dentists in Germany.—Consul Pitcairn writes from Hamburg that the number of practicing physicians in the German Empire has increased during the last thirteen years from 15,824 to 21,725, or 56.25 per cent. During the same period the population has only increased 14 per cent. In Prussia, of 1,620 military and marine physicians, only thirty-one out of every one hundred now become general practitioners. Formerly fifty-seven out of every one hundred left the service and entered general practice, demonstrating that the ranks of the general practitioners of medicine are becoming more and more crowded. The number of midwives is not increasing in comparison with the population.

There are 12,099 practicing dentists in the German Empire. American dentists, or German dentists who have received their education in the United States, command the best fees and are held in the highest repute.

Anaesthesia by Cocain to Spinal Cord.—The production of a general anaesthesia confined to the lower portion of the body by means of cocain injected through a Quincke's lumbar puncture of the spinal cord was carried out successfully in six patients, while in the case of one of the physicians the anaesthesia produced was carefully studied by the physician who submitted himself to this method. The anaesthesia in the area below the seat of puncture and up to the nipples was complete in 8 minutes and lasted for 45 minutes. The amount employed was 0.005 grams of cocain (about 8-100 grain). No harmful effects were seen, except in the cases of physicians who did not go to bed and continued about their daily work the following day. One of the physicians was compelled to go to bed and remain upon his back for a number of days. While lying down he was comfortable, but became giddy when he sat up. This he accounts for by the fact that he lost a considerable amount of cerebrospinal fluid during the operation. This should be carefully guarded against and the patient confined to his bed for some days after the operation.

Philadelphia Medical Journal.

Chloretone, $C_4H_7OCl_3$, is a derivative of chloroform and acetone, and is also known as acetonchloroform; it is chemically described as a trichlor-tertiary-butyl-alcohol. When caustic potash is gradually added to equal weights of chloroform and acetone a reaction ensues which results in this new substance, which is isolated by steam distillation for the removal of whatever of the two principal substances may be found to exist. Having been cooled, after the removal of water by melting, it appears in white acidular crystals with a strong odor of camphor. In chloroform, acetone, strong alcohol, ether, benzin, and glacial acetic acid, it is freely soluble; in cold water it is soluble to the extent of one per cent., which corresponds in therapeutic value to a four per cent. cocain solution. It is hypnotic, but that does not limit its applicability. It is an analgesic of value, and very successful as a local anæsthetic. *Med. News.*

Dangers in Making Phosphorus Matches.—Dr. Talbot, the medical officer of health for the "match factory district" of East London, has just made a report on the phosphorus danger which is unexpectedly encouraging. He asserts that yellow phosphorus can be used in making matches with perfect safety, provided certain parts of the process are carried out practically in the open air. He bases this conclusion and change of view on his part on a visit recently made to a factory in his district where 500 hands are constantly employed, and yet where not a single death from necrosis has occurred in ten years, and only two mild cases of "phossy jaw." The secret lies in doing the mixing of the paste and the dipping of the matches on the roof of the factory, under little more than an awning to protect from the weather. The fumes escape so rapidly that no odor even is perceptible.

The Laborde Methode.—On July 5th, 1892, Prof. Laborde communicated to the Paris Academy of Medicine a new method of resuscitating the apparently dead, by a method called by him "the rhythmic traction of the tongue." This method consists in the rhythmic traction of the tongue by two fingers covered with ordinary cotton or a handkerchief, the traction being at the respiratory rate of 18 to 20 per minute in adults, a little more rapid in the newborn. The author explains the success of his method by saying that the action results in a reflex irritation, which is referred to the respiratory center through the motions at the base of the tongue, the nerves which respond being the superior laryngeal, glossopharyngeal, the lingual, and, finally, the phrenic. The method was first used exclusively, and even now is used by the majority of the profession, in resuscitating those who stop breathing under chloroform, the drowned, the would-be suicides by hanging, but later has been used successfully in asphyxia neonatorum.

Peroxid of Hydrogen as a Local Anæsthetic.—Injected under the epidermis peroxid of hydrogen produces immediate and complete anæsthesia of the whole skin. I have used it for over a year in opening abscesses, cutting off redundant tissue in ingrowing toe nails, opening the pleural cavity, and in one case the abdominal cavity. I do not think any absorption takes place, as the intercellular inflation from the gas generated seems to produce such pressure that the skin cuts like frozen tissue.

H. E. Kendall, M.D., Medical Record.

Extraction of Rubber.—A new process has been discovered for the extraction of india-rubber from the tree. The bark and roots are cut up and soaked in dilute sulphuric acid, which decomposes the woody portions and does not affect the india-rubber. In this way the rubber is separated from the bark and roots, and is obtained in quite a pure state. The inventor of this process stated before the Society of Civil Engineers of France that one pound of india-rubber could be produced by this method at a cost of about five cents.

Treatment of Carbolic Acid Poisoning.—Harnsberger (*Charlottesville Med. Jour.*, February, 1890), saw a boy, aged sixteen years, within thirty minutes of the time that he had swallowed 1.5 ounces of carbolic acid. He was in a limp and comatose state, the pulse being imperceptible. A pint of cream was at once poured into the stomach, which was kneaded in order to mix thoroughly the cream and the carbolic acid. Dry heat and friction were applied to the legs and arms. In two or three hours consciousness returned. The administration of cream and unskimmed milk was continued at short intervals for several hours. The patient entirely recovered in two days. Harnsberger has found that an adult can take four drams of pure carbolic acid mixed with cream and glycerin, or with alcohol, without any toxic symptoms developing.

Med. News.

Facial Hyperidrosis of Nervous Origin.—E. Ruggiero reports the case of a young sailor, aged twenty years, whose face is constantly covered with perspiration, both summer and winter, day and night. There are no symptoms of hemicrania, facial neuralgia, cephalalgia, disturbance of facial muscles, or cutaneous or olfactory sensation. The chief seat of the disturbance is the tip of the nose, where in freezing weather the perspiration freezes. The author believes the trouble to be of nervous origin, probably in the anterior nerves of the cervical spinal marrow, the lesion involving the fibres which the trigeminal receives from Gasser's ganglion. The prognosis in this case is bad, as the disorder has already lasted several years. Local remedies have had no effect, and nothing can be hoped from the use of electricity. It might be useful to recut the nerves distributed to the affected region, the naso-lobular nerves of Chaussier.

Annali di Medicina Navale, March, 1900.

A Rival of the Famous Crowbar Case.—Barritt (*Lancet*, January 7th, 1899) gives the details of a case which fairly rivals the famous instance in which a Vermont quarryman, while tamping home a blast, exploded the same and lost one eye, by reason of the crowbar passing clear through his head, entering below his chin and passing out through the frontal bone. He recovered and lived some years in unimpaired vigor, and his skull now adorns the Warren museum in Boston. Barritt's patient was a lad, aged 14, who rammed a muzzle-loading gun with a thirty-inch iron rod. The gun was cocked and had a cap on. The jar brought down the hammer, and the ramrod, which measured $\frac{5}{8}$ -inch in diameter at its big end, passed point foremost into the boy's forehead over his left eye, and out of his left parietal bone. He walked 200 yards to the house, and rode three miles to a hospital. In three weeks his wounds were so far healed that he went home. There was a discharge during convalescence of a thimbleful of bits of gray matter of the brain. The aphasia and partial paralysis of the right arm which followed the accident gradually disappeared.

Powders for the Teeth.—

Camphor Dentifrice—

R	Camphor	1 cg.
	Powdered soap	3i
	Saccharin	2.5 c.
	Thymol	v cg.
	Calcium carbonate	3i
	Oil of sassafras	1 to 2 drops.

Wintergreen oil or cassia oil may be substituted for the sassafras oil, if preferred.

Violet Tooth Powder—

R	Naphthol	fl. v cg.
	Saccharin	2.5 cg.
	Calcium carbonate	3i
	Powdered soap	3i
	Ionone and oil of cananga	15 : 1 2 drops.

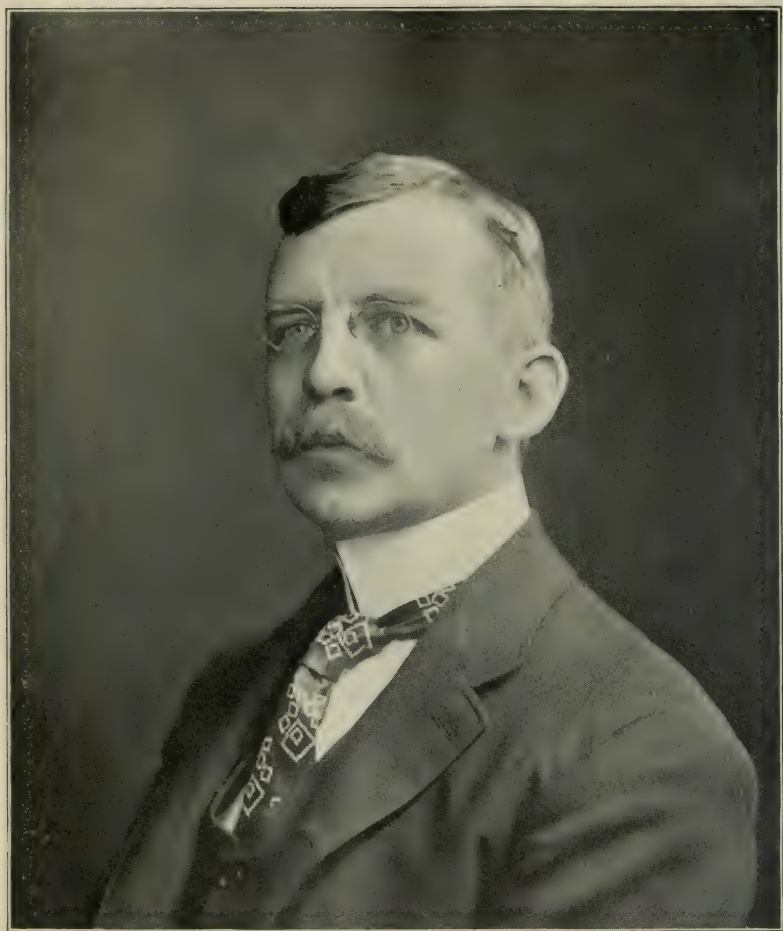
Astringent Tooth Powder—

R	Myrrh	3i
	Sodium chlorid	3i
	Powdered soap	1 cg.
	Calcium carbonate	3i
	Otto of rose, q. s.	

Menthol Tooth Powder—

R	Menthol	x cg.
	Naphthol	fl. v cg.
	Saccharin	2.5 cg.
	Calcium carbonate	3i
	Powdered soap	1 cg.
	Otto of rose, q. s.	

Odontologie.



J. H. Broome, D.D.S.

THE DENTAL BRIEF.

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No. 8

ORIGINAL COMMUNICATIONS.

ARTICULATION AND ARTICULATORS.*

J. A. Robinson, Morrisville, Vt.

"All things I thought I knew; but now confess
The more I know, I know I know the less."

The subject of "Prosthodontia," using Dr. Ottolengui's new word, has received but little attention of late years from this society, especially that branch relating to articulation of artificial teeth. I present it as a part of our work which needs vastly more attention than it has received from us, as the more one studies it the more we will find there is to know.

I have been at work on several different ideas pertaining to this subject for some time, and have arrived at this conclusion: The successful cases we have are more accidental than intentional. I will as briefly as possible summarize the work others have done in this line before I bring to your attention some things which I found were interesting to me and perhaps may be to you.

We all know of the life-work of the late Dr. Bonwill on this subject; of his circles, equilateral triangles, etc. You will find many solid truths in his works, though there may be several things therein that are not essentially necessary to the proper articulation of the teeth, still there are ideas which, if rightly understood, will help us to be more certain in this line of work. There are certain laws which govern every motion of the human body, and the nearer we approach those laws when supplying artificial members to that body—be it teeth, eyes, hands, feet, arms, legs, or what—the more perfect the use of that substitute.

*Read at the Vermont State Dental Society meeting, March 21st-23d, 1900, St. Johnsbury, Vt.

While Dr. Bonwill may have gone further than he need in some directions, he did not carry his work far enough in some others, as I will explain further on. I think the Bonwill articulator was perhaps the first step in advancement in the right direction. The work as done on the ordinary articulator in use can be but faulty and is tolerated because of its necessity. I believe it is possible to do better and more perfect work in this line.

Too much of this work is left to the three-dollar men, and for want of anything better the time is soon coming when that class of work will answer the purpose as well or better, because of that necessity. Perfect work cannot be done on the ordinary articulator; there are certain movements of the human jaw that should be had in the articulator to get the best results. If there is an average of four inches from the center of one condyloidal process to the other, and the same from the center of either condyle to the center line at the point of meeting of the cutting edges of the lower centrals, does it not stand to reason that artificial teeth set up on an articulator built on the Bonwill triangle would be more sure of perfect articulation in the mouth? I would most seriously ask you to study Dr. Bonwill's writings. Read and re-read his last articles in the September and December numbers of the *Items*. He has there placed the subject in a much better manner than I can. I wish you would also read carefully the paper on Articulation by Dr. Snow in the January number of the *Cosmos*.

In these I think you will find the necessity of using an articulator of different construction from the ordinary one, which measures but two inches or less across the condyles or bearings; one which will give the motions of the lower jaw or maxillary not only in the hinge or direct up and down swinging motion, but more particularly in the lateral motion or the motion made in chewing. After studying these you will not wonder at the remarks made by many who, wearing artificial teeth, say they do not chew their food but simply pound it. Their teeth were made to be used in but one way, and that directly up and down—any other motion would tend to dislodge their plates.

I wish it understood I am not advertising or advocating any particular articulator, but in order to make my work a success, I have used several different ones, and I propose to show several here, and shall give what to me are the strong and weak points of such as I have.

You all have seen the Bonwill articulator. I need not say much about that one. The Gritman, while embodying the better qualities of the Bonwell, excepting its lightness, simplicity, and freedom of vision of the work from the back, goes a little further, and provides for adjustment of space between the bows, and also trying to better imitate the natural movement by providing for the downward motion of the condyles at the same time as giving the lateral movement of the lower maxillary. You will do well to read Dr. Gritman's paper in the November *Items*, which is very readable and instructive. I have with me one of those articulators, which I have used for about five months, and while I think it can be improved in some ways, as I will show later, I will say this: The work done on it has been very satisfactory to myself and patients. I also have the Snow face bow, which, though made to be used with the Gritman articulator, can be adapted to any of those made wide. This has proven in my hands to be another advancing step.

It is but a short time ago the idea as to how the models went into the articulator made any difference with the work, was brought to my attention, nor have I taken any particular trouble to get the mesial line at the front of trial plates within the prescribed four inches from the joint, to say nothing as to whether the line was in the centre of the articulator, or the back of models were up or down, or swung to either side from the position they should be in. I take it that "right is right," rather than "what is is right," and if we wish to meet with universal success, we must have everything as nearly right as possible. If the face bow was used by operators to set their models, more successful work would be the result, I verily believe; since using it my success has been gratifying, as the teeth when in the mouth more correctly fill the place of the lost natural organs.

I wish now to take you a little further toward what is, to my mind, a bettering of results in the articulating of artificial teeth, the better to imitate the natural ones. I do not say what I have to offer is new, for it may be old, but, if so, I have never seen it described or used.

The work of those I have mentioned, as well as of others, is all in the right direction. There is but little to be added to their work, and I wish I could as ably express my ideas as they have theirs.

I claim the usual relation of the jaws, or rather the two sets

of the human teeth, are as a ball and socket, or, better, a ball and cup, as some might think I referred to the ball and socket joints; not so. But to explain: the lower jaw carried either laterally or forward and back, will resume its place when carried to its natural position with a motion as though a cup was being placed on the side of a ball just adapted to it. Take a small, straight edge like a pencil, lay it across the lower teeth, and you see that while the buccal cusps touch the pencil, the lingual do not. By reversing the pencil to the upper teeth, you will find the opposite; the palatal cusps touch while the buccal do not—showing the idea of the ball and cup, the upper teeth forming the ball, while the under form the cup.

The line drawn in conformity to the faces, or grinding surfaces of the posterior teeth is a curved line, and the arc of a circle varying from a very small one to almost a straight line. I have used the arc of a circle twelve inches in diameter, as that perhaps is an average and a fair one to work on, though you will find many which are much smaller.

Looking at the Bonwill diagrams in the September *Items*, illustrating the teeth in mastication, you find he has the line drawn across the masticating surfaces of the molars, a straight line (see Fig. 1). I claim the line should be the arc of a circle (see Fig. 2). Then, when the lower jaw is carried to the left in the act of chewing, the cup slides to its place on the ball and stops against the cusps on other side.

Dr. Bonwill curved his line toward the ramus, but not in the direction I have just mentioned, as you will see in his figures, A1, 6 and 7, and in Figs. 3, 4 and 5. The teeth, if without cusps, and arranged as in Dr. Bonwill's drawings, would continually slide from side to side; while arranged as I claim is right, would come to a common center and remain there until again carried to either side, as in masticating.

I will give you an outline of my methods: Impressions, models, bites or articulation taken and made as usual, being sure each step as taken is correct. The bite-plates are then locked together with the little bite locks made for that purpose, and which I devised several years ago, as illustrated in the *Cosmos* of August, 1896, also in "taking impressions of the mouth" by the S. S. W. Co., 1898. These do away with all the uncertainties of the usual method of marking them with a series of crosses, etc., taking from the mouth separately and trying to

get them into the same position they were while in the mouth. By locking and removing them together, they must needs be just as they were in the mouth; then by using the face bow you will get the models in the articulator, so there is no doubt but they are right. Then set up the front teeth of both sets, fastening them to trial plates slightly, as you may wish to change some of them a trifle. Then, turning back the upper bow or top of articulator with the upper model, and attaching the convex disc, setting the remaining under teeth to the disc, making sure the inner cusps touch it as well as the outer. Thus, making plain the reason for wanting plenty of space at back of articulator the better to view the work, even the front under teeth are to be set to the disc.

After the lower ones are set, remove the disc, turn back the upper model, and articulate the teeth to the lower ones; when I say articulate to the lower teeth, I mean just what I say, and not merely touching them on the outside or buccal cusps; be sure of the articulation on the palatal side.

It is sometimes difficult to secure teeth that will conform to this method without some grinding—not of the cusps, if avoidable—to shorten them so as to go under the arch. It is also difficult to use gum teeth as now made. I am sometimes obliged to turn a bicuspid or molar round wrong side out to make it conform to my idea. Sometimes, when articulating to natural under teeth, I crowd a tooth in nearly out of sight, at other times turn nearly or quite a quarter round. The over-bite of the superior incisors should not be enough to interfere with the perfectly free lateral and forward and back motion of the lower maxillary.

When the plates are completed, the lower set is touched up on the convex side of a corundum wheel, which is made on the same arc as the disc, and the upper on the concave side; this is to grind off any particular cusp that might interfere with the free motion of the jaws, as the slightest obstacle may tend to destroy the easy sliding movement necessary to the perfect working of the teeth.

The wearer of plates carefully made, following these methods, has, I believe, as nearly a perfect denture as it is possible to make; they do not have to pound up their food, but can masticate or chew it as well as is possible with other than the natural organs. I have had the very best of success with my cases since adopting these methods.

I will call particular attention to two or three things: First, the usual method of articulating an upper set to the natural lower teeth; as a general thing the masticating surface of the lower teeth turn into the mouth perhaps more and more as time goes on, and when we set up teeth to articulate with such, there is a tendency on the part of many to articulate simply to the buccal cusps—more especially in using gum or block teeth. This will undoubtedly make a set that looks well out of the mouth, but it is like eating with pegs to use such a plate. It should be our aim in all our work to give our patients the best we can. With teeth articulated like some I have brought with me, how much better the act of mastication can be carried on than if the teeth touched but on buccal cusps! Secondly, articulate the teeth in such a manner that when the lower jaw is carried forward, the pressure or bearing is on some of the back teeth rather than on the incisors, also the same while using the lateral movements.

Some think there would be no difference between teeth set up on articulators two and four inches between bearings. There is a difference. The circle or arc of a circle cut from the center of lower centrals is much different, whether the compasses are set one or two inches from a line drawn backward from said center and intersecting a line running at right angles from it, representing the line of bearing of the articulator, or from condyle to condyle; and as there is this difference, and one is right, the other wrong—and right is and must be right, and just as cheap; let us adopt it.

You expect me to show an articulator of my own make, and inform you I think it a little ahead of the others in some respects. It does have several features to recommend it to your attention; it is not quite so nicely finished as those which are made where such work is done. One thing is the space at back to facilitate the work of setting up the teeth, observing the inner cusps should make work a trifle easier; it is light and still strong; it is adjustable where it ought to be; it has the movements of the lower mandible more correctly than some others. It is not yet completed. I have been unable to do the work on it that I wished on account of our machine shop being too full of work to bother with it. I have not the disc connected, which is to be done with a ball and socket joint that it may be properly adjusted and held there firmly. The Gritman, while it has the sliding motion at the joints to imitate the downward motion of the lower jaw at

the same time as the forward and lateral movements, still when in use the bows are nearer together by one-eighth inch when lower bow is brought forward than when at rest. I have overcome that fault in mine, as you will notice the bows are further apart when in that position, thus doing away with the breaking down of plaster cusps when articulating teeth to such. The upper bow can be turned back further than the Gritman, and is easily removed when desired. The springs used are too stiff in all of them. I have used mine with but a small rubber band, and some of the time without any sort of spring, as when left alone the weight of the cast will usually bring it to its right position.

I make my principal claims on the disc, and method of articulating the teeth.

I have with me several cases articulated by my friends. When sending the models and teeth I asked them to do the work just as it is done in their office in every-day practice. There are no marks on them to show who did the work, and you are at liberty to examine them and make all the comments you please, for you will hurt no one's feelings, as we are here to learn all we can regarding this subject—in fact, you are asked to criticize the articulations. There are several sets of my own with the lot, and I expect you will select others as being the best, most correct work; if that is the case, it will make no difference to me, for I believe I am right, and shall stick to my ideas. These cases were set up on almost every conceivable make of articulators.

I have also several of the most approved articulators: the Gritman, the Antes, one made by the C. D. M. Co., the Bonwill, as made by the S. S. W. Co., having a screw to adjust the space between bows, which was not advocated or used by Dr. Bonwill, but to my mind is quite essential; the Bridge, made by a young student in the Boston Dental College—this one has several good features, but lacks the essential width of bearings. I also have a modification of the Bonwill, made by myself.

The Gritman is the one I have used the most, as I have had it the longest. It has not enough space for viewing the work from the back; the inability to turn the top over further is to me a detriment, as is the lowering or nearing of the bows when giving forward motion to lower bow; this latter trouble can be easily remedied by filing off the plane on which the regulating screw works to a proper bevel. It is of the right width, uses bows, and on the whole I am much pleased with it. The

Antes has several good points as well as bad ones; the lacking of lateral motion may be an advantage to some, but not particularly so to myself; the locking back of the top is all right. It might be made a first-class articulator with a few changes; it is not wide enough at the bearings, has no provision for raising the upper bow when springs are deflected; the spring in this as well as in others is stiffer than is necessary; the vision of work from back is not materially obstructed, but would be if made wider, except across bearings. I much prefer the bows to the cast-plates, to which to attach the models. The one sent me by the C. D. M. Co. is very nicely made and finished—too nicely in some of its parts; it has but the up-and-down swing, very much the same as the ordinary one in use, and excepting its being adjustable to thick and thin models, is the same; is but two inches wide across bearings, and does not have any lateral movement.

The No. 7, or improved Bonwill, is similar to the original, and is light, strong, well made and nicely finished, and is all in all a very good articulator, needing but two or three changes to make it all right. The plate for the adjusting screw is too small, not of right angle, and it does not allow of different thicknesses of models. The Bonwill, as made by myself, does away with part of these objections, as I have more space to view the work from the back, the adjusting screw above out of the way, and the angle or bevel of plate below the screw is such as to drop the lower model when using lateral movements.

The little crown articulator sent me by the makers of the Antes is an improvement over any I have before seen.

I wish to thank my friends who have helped me so kindly by setting up the teeth I sent them, also the manufacturers for the different articulators that have been sent me. They have all aided me in my work. I have endeavored to bring you something that would instruct as well as interest you, and all these have been of assistance in the information gained by comparison.

Do you have upper plates to repair that are broken or cracked down through the center? Nearly all of us do. I think they are cracked or broken principally from one of two causes, perhaps both. One cause is the setting together of the jaws, while sleeping, so hard and tight that something has to give; I believe this causes more trouble by grinding or knocking off the teeth than breaking the plate. The chief cause of the cracked plates to my mind is articulating the teeth on the principle just

the opposite from what I have been describing, *i. e.*, using the under teeth as the ball, the upper as the cup; then when in use the upper teeth are spread every time the mouth is closed, owing to the wedging motion. The same conditions exist when articulating upper teeth to the buccal cusps of the lower ones.

One thing more I have to say: I never sacrifice adaptability to looks when articulating artificial teeth, and that is my first and chief reason for using plain teeth, and if we had a more perfect imitation of the natural gums I would never think of using block teeth unless the patient particularly demanded them; they make the best looking set out of the mouth—there is no disputing that—but that is the only thing to recommend them, for you cannot articulate as you should and keep good joints. If you are making a set to look well out of the mouth, use block teeth, but if you are making a set for use in the mouth, use plain teeth every time. I wish to be emphatic on this point; never sacrifice adaptability to looks. You may possibly find you have really both when you put your case in the mouth.

In connection with Dr. Robinson's paper he had some twenty sets of teeth that were articulated by different plate-workers, making a very interesting and instructive display. It cannot be said that many of them were perfect specimens of the art, for there were but few that would be accepted by some of the better operators. As there were no marks on them to enable one to know who did the work, no one could feel hurt at just criticism. The greatest mistake made by many is in articulating (they do not articulate, so should not be called articulations), the setting the teeth so they only touch the buccal cusps, and do not furnish any grinding surface. The set the doctor showed, where he turned the second bicuspid and molars inside out in order to articulate with plaster lower molars and bicuspid, indicated the idea very plainly; others, using gum teeth especially, in order to keep within line, sacrificed the articulation for sake of the looks. Dr. Robinson does not approve of that unless in case of the eight front teeth, including the first bicuspid with the six anterior teeth. You must care more for adaptability back of them. He advocates the throwing away of the cuspid and using the second bicuspid in their place when patient has but few lower teeth, and in setting up an upper set. Many a good-looking articulation set up on an ordinary articulator showed pronounced defects

* when shifted to an articulator having the lateral and forward and back motion, as is made in chewing. As soon as articulator was used by depressing the springs, the teeth would fall like hail (being mounted in wax or gutta-percha only). Some under teeth were so set in from the arch that if made up in actual practice the tongue would lift the plate every time used. While some were set up somewhat in conformity to Dr. Robinson's method, others were directly the opposite.

As to the articulators, the one the doctor calls his own has several points to recommend it, and he was asked by many as to when they could get one like it. It was to be regretted it was not completed, so it could be shown up to better advantage. The Gritman was considered too heavy, and as nothing is stronger than its weakest part, so, too, with this articulator; its weakest place is in the joints, and as it springs there, there is no necessity of making the rest so heavy. It will also break off plaster cusps, as it is not constructed rightly to raise the upper model a trifle. The Bonwill, as handled by the C. D. M. Co. and the S. S. W. Co., are defective in several ways, as mentioned in the doctor's paper. The Bonwill, as made by Dr. Robinson, corrects many of those objections. Nothing is to be said for those similar to the ordinary articulators in use for years, only a word of advice to those using them: Don't. And as to those like the Antes and the Bridge, which have the lateral and forward and back movements, but lack the requisite width of bearings, there can be but little to say, except to advise the makers to make them wider, similar to those first mentioned.

The doctor found a new articulator in one of the depots after getting to St. Johnsbury, one invented by Dr. Cushings, of New Hampshire. It is too light in its construction, and would easily get out of condition—too complicated.

The greatest fault to be found with the articulators like the Gritman or Snow (which it should be named), the Bonwill and others having requisite width, but still lacking in not having space enough at back to easily articulate the teeth. And this may be one of the causes of poor articulations, the operator being often unable to see the working of things inside, and so neglects to give it proper attention.

THE USE OF FLEXIBLE STRIPS.

Mary E. Blake, D.D.S., Springfield, Mass.

The manifold advantages of the carefully adjusted matrix commends itself ever daily anew to the painstaking dentist, strong factor as it is in the placing of fillings almost ideal in character, perfect in contour, closely knuckled, with the well protected margins so good to look upon with the passage of time.

There are many excellent matrices in the market, and several band devices, more or less universal in application, while those made and fitted for each individual case, and wedged into correct position, are of real worth. Their use, however, is confined almost exclusively to the bicuspid and molar regions, and there is no denying the fact that they become more and more advantageous with each tooth posteriorly, where the problem of reaching the highest or lowest point of the cavity, the vulnerable cervical margin, becomes a test not only of one's skill, but patience as well.

Of course, the cavities, posterior to the cuspid teeth, are usually reached from the coronal surface, or cutting edge, the matrix forms the missing wall, and one proceeds to the filling with ease; but in the anterior teeth the conditions are different, the cavities are almost invariably of mesial or distal aspect, and the use of a fixed matrix is both impracticable and undesirable.

The writer has derived an immense amount of satisfaction from the use of flexible metal strips, as an adjunct to the insertion of cement fillings in the twelve anterior teeth, and each day is impressed with their value.

The usual soft, half-hearted, discouraged, easily-creased and twisted German silver strip of commerce is not meant, but one of steel, fine of temper, well planished, smooth of edge, and full of spirit and spring in length, stiff and rigid from side to side, as a whalebone is both flexible and rigid at the same time. Such strips can be procured and should be about two inches in length, one-quarter inch wide and No. 42 B. and S. gauge. These should be kept clean and bright; this point is of prime importance. Now as to their use.

Everything being ready, except the actual mixing of the cement, pass the strip between the teeth, letting the ends remain

loose, or tucking them around adjacent teeth. Often I request my small people to hold them back, allowing them to watch the procedure in the glass side of my table. The filling material, rolled into a tiny cone, is inserted into the cavity with suitable instruments, pressed well against the strip until the desired amount is used. Then bend the strip around the tooth, again and again, drawing the cement into and not out of the cavity, form the contour carefully, pass up to the cervical margin, leaving it smooth and well shaped, then withdraw it, allowing the cement to harden thoroughly. The closest, most workmanlike proximal fillings can, in this manner, be well placed, correct contour secured, and the old-time laborious methods of finishing be obviated.

Space of a minimum amount and the passage of a thin strip has already been secured, with no danger of dislodgment of filling, and certainly no discomfort to patient—there remains but trifling work to trim down nicely with curved chisels and sharp scalers, disks and strips.

When the orifice to the cavity is deepest on the lingual surface hold the strip firmly on the labial side, press the cement into place from underneath, using a ball burnisher, securing concave form at once—indeed “the stitch in time saves nine,” and advantage should be taken of every second of working time while the material remains plastic. Should it be necessary to insert the cement of rather soft consistency, it is well to oil the strip very slightly, or dust over it the powder of oxyphosphate mixture, while in case of gutta-percha fillings the strip may be slightly warmed, or not, as the operator likes best.

ABSTRACTS AND SELECTIONS.

DENTAL AND ORAL SURGERY.

ITS RELATION TO THE GENERAL FIELD OF MEDICINE AND SURGERY, AND THE TRUE PROFESSIONAL STATUS OR RANK OF THE PROPERLY EDUCATED PRACTITIONER OF DENTAL AND ORAL SURGERY.*

N. S. Davis, M.D., LL.D., Chicago.

The American Dental Association was organized in Washington, D. C., in July, 1860, by twenty-three delegates representing the chief dental societies and dental colleges then existing in the country.

The fifth annual meeting of the association was held in Chicago during the last week in July, 1865, and its members were welcomed in a brief but excellent address by the late W. W. Allport, D.D.S., M.D., of that city. On the evening of July 27th, 1865, during the annual meeting, I had the pleasure of entertaining the members in my own home, and was called on to respond to the following sentiment offered by Dr. C. W. Spaulding, then President of the Association: "To the President of the American Medical Association, Medicine, Surgery and Dentistry, departments of a common science, their disciples should constitute a common brotherhood."† I cannot now, after thirty-five years have passed, give a better expression of my present views concerning the true relations of dental and oral surgery to the general field of medicine than by quoting a large part of the response made by me on that occasion, as follows: That medicine, surgery and dentistry are actually departments of a common science, very few will be disposed to deny. I say a "common science" in deference to popular custom. It would be more proper, however, to use the plural form of expression, for what is generally styled medical science is really an aggregation of many sciences and their cultivation with direct reference to the prevention and alleviation of human suffering. The science of medicine properly so-called consists of facts and principles

* Presented at a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

† *Chicago Medical Examiner*, September, 1865, p. 576.

selected from every department of the natural sciences, from philosophy, psychology, political and social economy, and their application to the elucidation of the causes, nature and treatment of such diseases, deformities and injuries as are liable to afflict our race. Therefore, the student of medicine in its general sense is emphatically a student of nature. And not only so, but he studies the broad fields of nature for the highest and noblest of temporal objects, namely, to qualify himself for mitigating or relieving the imperfections, deformities and diseases of his fellow-men, whether they occur in the teeth, the organs of special sense, the extremities, or the more vital organs within the body.

Medicine, surgery and dentistry are all based on chemistry, anatomy, physiology, pathology and *materia medica*. Without chemistry and anatomy no one of you as dentists can know either the composition or structure of a single tooth, or its connection with the jaws, gums, blood-vessels, nerves, etc. Without physiology no one could know the natural uses and influences of the several parts just named or the relations of the teeth to the whole processes of digestion, assimilation and nutrition.

As pathology bears the same relation to organized structures in an imperfect or diseased condition as physiology does to them in the natural, so without a knowledge of it, neither the physician, surgeon nor dentist could know anything of the origin, nature and tendencies of the diseases and defects he professes to treat. The *materia medica* in its full scope includes everything that can be made useful in the mitigation or removal of any of the ills to which our race is liable. The gold that fills the cavity in a tooth, the wash that soothes an irritated gum and the instruments used for adjusting them are as much a part of the *materia medica* as are the pills and powders administered by the physician.

Consequently, these five branches of medical study are fundamental, and no man can do full justice, practically, to the most limited specialty without a thorough knowledge of them all. Every member of the American Dental Association will doubtless acknowledge that a dentist certainly understands the composition, structure and mode of development of the teeth, together with the causes that render their development defective or induce in them disease and decay. But in every tooth you

have three of the five primary forms of living, structural organization, namely, the fibrous, vascular and nervous, with the peculiar arrangement of inorganic matter to give it solidity.

A knowledge of these structures, whether chemically, anatomically or microscopically, involves a knowledge of the same structure in all other parts of the body. To understand development of a tooth and its appendages from materials furnished by the blood involves a knowledge of the blood itself and of all the laws that govern the intricate processes of assimilation, nutrition and disintegration in living structures generally.

The same remark applies with equal propriety to the causes of imperfections and diseases of the dental organs and the means for remedying them. Therefore, so far as dentistry involves scientific knowledge, as distinguished from a mere mechanical art, it rests on the same foundations and necessarily involves the same series of studies as all other departments of medicine and surgery. The various organs and structures of the human body are not as so many isolated parts, the functions and diseases of which have no influence on each other, but they are so intimately connected and mutually dependent that not a single morbid impression can be made on one organ that will not exert some modifying influence on all the rest.

The same heart sends the blood to every organ and structure of the body. The same nerve-centers radiate the delicate threads that are to impart sensibility or to command motion in the remotest part of our organization. And the same vital properties pervade every living atom. Every link in the chain of actions constituting digestion, assimilation, nutrition, disintegration and excretion is so connected that not one can be broken without embarrassing the action of the whole. Consequently, it is not possible to comprehend the nature, tendencies and results of the diseases of one organ without studying their influence on all the others, and vice versa. There can be no such thing, therefore, as specialism proper in the study of pathology or the nature of diseases. The whole field must be studied before any one of its parts can be fully understood.

There is still another aspect of this subject that is worthy of a moment of thought. From the nature of the laws that govern mental processes, exclusive practical attention to any one department of a general subject tends to contract and bias the mind by giving undue relative importance to one series of

facts, while neglecting another series of equal importance. An evil of much greater magnitude, however, consists in the strong tendency of specialism to encourage incompleteness of professional education. During a connection with medical teaching for sixteen—now more than fifty—years I have rarely found a student who on his final examination proved himself ignorant of some important department without his alleging that he did not intend to practice that particular department and consequently had paid less attention to it. Indeed, incompleteness of education leading to the adoption of partial and restricted views and the universal tendency to neglect whatever is not intended to be turned directly to practical pecuniary advantage constitute the foundation of a large part of the evils that exist in the professions of our country. During the thirty-five years that have elapsed since the first expression of the foregoing views the last-named evil has been developed to an extraordinary degree. Instead of a few divisions of the wide field of medicine, we have seen it cut into almost as many specialties as there are organs or groups of organs in the human body. And we are told that every individual member of the profession should limit his study and practice to some one class of diseases, or to the diseases of some one organ or group of organs. By thus concentrating attention upon a limited number of diseases or injuries, it is claimed that greater skill will be acquired in their treatment and greater advancement in our knowledge of their nature and tendencies. It is also claimed that the whole field of medical sciences with their practical application is so extensive that it is impossible for one man to so master the whole as to properly qualify himself for the practice of all its departments.

This process of reasoning is plausible and to a limited extent true. It is true that in all the mere mechanical arts, the greater the division of labor, and the more perfectly each man is restricted to a certain series of movements, the greater will be the accuracy and skill acquired in their performance.

The dentist who restricts his work entirely to the processes of filling teeth may possibly acquire greater skill in that particular work—provided he has enough of it to do—than he would if in addition he extracted teeth, fitted artificial teeth, treated diseases of the mouth, etc.

The surgeon who restricts himself entirely to the more important and delicate operations on the eye, or the ear, or the

blood-vessels, may acquire greater dexterity in performing these operations than if he attended the whole field of operative surgery. But the rule applies only to such operative procedures as are essentially mechanical, and cannot be extended to the treatment of the diseases of particular organs without causing much more evil than good, simply because there is no living structure or organ in the body so isolated that its functions both in health and disease are neither influenced by other organs nor by the general functions of the tissue metabolism. Yet to such an extent has specialism been carried, both in education and practice, that we have special colleges not only for the education of dentists, but also for midwives, for psychoneurologists, for electrotherapeutists, for psychopathists, for physcopathists, for osetopaths and even evening or night colleges for the accommodation of those who are obliged to pursue some other occupation for a living during the day. In consequence of all this special or one-sided education, it is quite common to see patients suffering with headaches, indigestion and general prostration vainly treated week after week by local applications to the vagina and neck of the uterus when all they needed was fresh air, judicious exercise and proper diet; or patients suffering with plain scrofulous ophthalmia and being treated exclusively by local applications to the eyes until the edges of the eyelids are being denuded and the cornea ulcerated, when the prompt internal administration of alteratives and tonics in the beginning would have soon removed the whole difficulty; or patients with decaying teeth, diseased gums and aphthous sore mouths being treated solely by teeth cleaning, mouth washes or powders and local anæthetics to relieve pain, when the whole trouble depended on faulty assimilation and imperfect nutrition. Another consequence is that every family, instead of one, needs from six to ten doctors to supply its needs properly. There must be a special obstetrician to see that the children are born properly; another for diseases of the children; a third for the diseases of the mother; a fourth for those of the father; a fifth for the eyes; a sixth for the ears; a seventh for the nose, throat and air-passages; an eighth for the lungs and heart; a ninth for the nervous affections; a tenth for the teeth, etc.

Doubtless before this you are ready to ask if I oppose all specialists in the medical profession. I answer, "by no means." There is a natural basis on which a limited number of specialties

can be founded with great advantage; and which indeed develop themselves by the natural and inevitable course of circumstances. For instance, the diseases, deformities and defects of the dental organs, involving no immediate changes to life and requiring for the treatment of many of them a special mechanical manipulation, naturally and almost necessarily constitute a special department of surgery—a department, indeed, that should be regarded as equal in importance and dignity and consequently requiring equal education with every other branch of the profession. Those conditions of the eyes requiring delicate and dexterous operations are also mostly chronic and allow the patient time to seek and obtain the services of men who have acquired more than ordinary skill in the performance of such operations. The same is true of those conditions requiring the most dangerous and difficult surgical operations on other parts of the body, such as lithotomy, ovariectomy, the ligating of large and deep-seated arteries for aneurysms, etc.

Hence it is eminently proper that in all large cities where the required opportunities are afforded, men should devote special attention to such departments. But this can never justify or excuse any class of medical men for being content with only a partial medical education. In strict harmony with the foregoing views, several of the leading dentists in New York, Chicago and other cities, who had studied medicine as a whole and received the degree of M.D., became members of the local medical societies; and from these they were sent as delegates and became members of the American Medical Association. They were not only treated as actual members of the "Common Brotherhood," but at the annual meeting in Richmond, Va., in 1881, on the motion of the late Dr. Samuel D. Gross, seconded by Dr. L. A. Sayre and myself, a section of dental and oral surgery was created on the same footing as all the other sections of the association. The section was organized by the appointment of Dr. D. N. Goodwillie, of New York, as Chairman, and Dr. T. W. Brophy, of Chicago, as Secretary, and it has maintained an active and honorable existence to the present time, as your presence here to-day abundantly attests. To still further promote the union of dentistry with all the other legitimate departments of medicine and surgery, at the annual meeting of the American Medical Association in Chicago, in 1887, the following resolution was adopted by nearly a unanimous vote:

Resolved, That the regular graduates of such dental schools and colleges as require of their students a standard of preliminary education and a term of professional study equal to the best class of the medical colleges of this country and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery in place of clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in the Association on the same regulations as all other members.

Obviously there is no more propriety in having a separate profession of dentistry, than there is of ophthalmology, or neurology, or gynecology. The same standard of preliminary education and the same curriculum of medical studies covering the four years' course should be required of all who propose to practice in any of the departments or specialties of medicine and surgery. All should be required to pass the same rules, both ethical and legal. Let there be in every medical college faculty a professor of dental and oral pathology and practice on the same basis that you have a professor of ophthalmology, neurology or gynecology.

The instruction by an efficient occupant of such a chair is needed as an important aid to every practitioner of medicine, whether his field of practice is in the city or the country. For if he never attempts to treat a defective tooth or a diseased gum, he should be able to recognize the existence of such conditions and promptly direct the sufferers to those who would treat them. And for those members of the college class who intend to make dentistry their special field of practice, it would only be necessary to supplement their general course by from six to twelve months of post-graduate mechanical and clinical dental work, as do most of those who choose other specialties after their graduation. By thus unifying all departments of medical and surgical practice, including dentistry, under the same educational standards and the same title of doctor of medicine, the influence of the profession would be increased. Better economy could be practiced, inasmuch as it would dispense with the necessity for providing separate laboratories and professorships for teaching dental students the fundamental branches of medical science, as well as separate State Boards of Examiners, and some embarrassments pertaining to professional rank and position would be removed.

At the first annual meeting of the section, in connection with the American Medical Association, in 1882, one of its members presented an interesting paper on the importance of having dental practitioners for both the army and navy service, and the need of such has become so apparent since the war with Spain that serious propositions have been made in government circles to have at least one dental and oral surgeon appointed for every 1,000 enlisted men in the military service. But if they are not fully educated and graduated M.D.'s can they rank as regular members of the army and navy medical corps? Or will they be ranked simply as artisans? These same questions were raised recently on a proposition to appoint a dentist on the staff of one of the London hospitals. Another important embarrassment arises every time a dentist educated in an exclusively dental college desires to become a practitioner of medicine. In his application to a medical college he always insists that he ought to be graduated M.D. by simply attending the senior year of the medical college, when not one out of twenty of such applicants has been educated in either anatomy, physiology, pathology or materia medica and therapeutics, and it is practically impossible for him to make up these fundamental deficiencies while attending the practical and clinical instruction of a senior year.

This, however, brings us back face to face with the most radical evil that pervades all departments of professional education in our country, namely, the dominant spirit of commercialism that is ever ready to sacrifice mental discipline, breadth of knowledge and soundness of judgment for whatever leads most directly to the chance of earning the dollar.

COURSE OF STUDY.*

W. A. Evans, M.D., Chicago.

In preparing this paper I have had before me the time-cards of several of the very best dental schools that this country has produced. Some of these have rather nominal university connection; some have considerable university control; some have close medical school affiliations. Such figures as I use are obtained by averaging those derived from these schedules.

The question is not one of condemnation of the dental course as now existing. Lest there be some misunderstanding in this regard, I hasten to say that the average dental course is better than the average medical course. I will even state the matter more strongly: For the average dental student any good dental course is better than is the best medical course for the average medical student.

Unquestionably the past demand has been, and the present one is, for a dentist who can meet the ordinary questions that arise in the course of dentistry without any special reference to the more abstruse or remote problems, or to the more remote bearings of ordinary problems. This demand is changing, and the dentist of the future who succeeds will be a man somewhat differently educated.

If I may institute a comparison between the medical and dental courses, I should call attention to these facts: A small proportion of the medical graduates go through hospitals, thus learning the handling of patients, the every-day care for medical details and the bearing of responsibility, whereas, every dental student has two years of practical ordinary work in which he learns the handling of patients, the every-day care of dental details, the doing of things and the bearing of responsibility.

This matter of responsibility is no small item. When we must suffer the consequences or gain the rewards of a certain position, we learn that position more accurately, more judiciously and more permanently than we could ever have learned it otherwise. The medical dispensary in efficiency is not to be ranked with the dental infirmary.

When all this has been said, the fact remains that we do

* Presented in a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

not make of the dentist as broad a man as is possible. In looking over these catalogues I find that 50 per cent. of the professors of the dental schools investigated have some professional title in addition to their D.D.S., or without the D.D.S. I do not refer to literary degrees. This is evidence of recognition of the truth of my statement on the part of these men whose brains have put them in positions of authority.

How are we to increase not only their breadth, but their desires for greater breadth? The second clause is more important than the first.

In averaging these time-cards I find that in the first year in prosthetic technics prosthetic dentistry and other purely dental subjects, an average of sixteen hours a week is spent. In anatomy, physiology, chemistry, histology, bacteriology and materia medica twenty-one hours are spent. If we figure on Dr. Bayard Holmes' basis of two hours of preparation and one of recitation constituting an hour of study, then the twenty-one devoted to foundation work would increase perceptibly. Nevertheless, when we compare the number of hours of preparatory study required by the dental student with the preparation time required by the medical student, we find that the first year in dentistry does not require as much work as the first year in medicine. It would be advisable to make several changes. One would be to add a competent course in physics. It is usually given in connection with chemistry or made a nominal entrance requirement. The importance of this subject is so great in dentistry that it requires special consideration; it should not be left to the hazard of an entrance requirement. Dental physics also should be taught.

I find but little reference to embryology and comparative anatomy. Yet, when you finally solve the disease known as pyorrhœa, you will have to thank the dog. There are any number of dental diseases apparently impregnable, whose flanks can be turned through knowledge of the lower animals.

I do not know whether I would decrease that average of technics in the first year or not; but the number of hours devoted to the broader subjects ought to be increased. I find one school scheduling infirmity in its first year. This is wise. It seems desirable to put the student in the infirmity in the beginning of his work. A proper plan would be to assign each first-year man to a third-year man, and have the former serve the lat-

ter in the capacity of an assistant. He would do no work, but would watch the senior, wait on him, dry cavities, etc. The advantage of this would be twofold. It would give the senior confidence and self-control. It would save his energies. It would increase his observation and his mental acuteness. The first-year man would gain in many ways. Most important of all would be the fact that it would give him an idea as to the dental bearings of anatomy, histology, chemistry, etc. The declaration of Mr. Flannagan, of Texas, to wit: "What are we here for?" has been somewhat lost to sight. While we must ever broaden, we must always remember that the object is to make a dentist a broad, learned, growing, developing dentist, but always a dentist.

Coming to the second, or junior, year we find that the infirmary gets an average of eight hours a week on the assignment schedule. In a few schools the infirmary is conditional. The purely dental subjects get an average of sixteen hours. This includes prosthetic technics, orthodontia technics, prosthetic dentistry, operative dentistry, instrumentology, oral surgery and orthodontia. Other subjects, such as anatomy, physiology, pathology, bacteriology, chemistry, and materia medica and therapeutics get sixteen hours. My general criticism of the first year would apply with more force here. The disproportion is too great. There should be less of technical, laboratory and didactic instruction, and more of other work: less of the art, and more of the science of dentistry—dentistry broadly considered.

In the third year I find infirmary gets an average of twenty-five hours. In my observation the student actually puts in over twenty-five hours. To orthodontia, oral surgery, operative dentistry, prosthetic dentistry, porcelain and bridge-work, and applied pathology, eight hours are given; to other subjects about three hours. The criticism that I would make here is that too little study is required of the senior student. He is kept busy during the day, but the system of clinics and lectures without quizzes does not employ all his time. This is bad, because in this way he fails to get the full advantage of what is going on around him and thus gets out of the habit of studying while he is still in the school.

Finally there are two general considerations to be noted. The dental course should be a four years' course. The criti-

cism against lengthening the medical course does not apply here, for you keep your student far better in contact with his ultimate aim, and there is little danger of your making a scientist and ruining a practitioner. The dentists now practicing want it; the people do not oppose it. It rests with the possibility of unity in the dental faculties.

The second general point is this: Dentistry suffers whenever it is dissociated from medicine. They are not only natural allies; they are of the same body. Any effort at dissociating them tends to make of dentistry an art and possibly a trade rather than a science. Therefore, every possible effort should be made to hold them together. That which a young man gets in college comes in two general ways—what he gets from lecturer and demonstrator, and what he absorbs from his atmosphere. The latter transcends the former. Believing this, I must think the medical schools and the dental schools should be joined; that certain classes should be taught in the same section rooms; certain subjects should be covered in identically the same way; certain aims should be common, and association between the student should be free and untrammelled. This does not mean any loss of dignity to that which is properly a specialty, but it means an added dignity from an equal position in a great sisterhood.

THE DENTIST AND PER CENT.

G. B. Squires, Ph.G., D.D.S., Somerville, Mass.

After the article, "Dentists as Prescription Writers,"* was published the author received several letters from dentists, asking for information in regard to per cent. In the *Dental Cosmos* for June, 1898, there is a short editorial, in reply to queries, on the same subject; showing that there are many dentists who do not understand the meaning of per cent., and therefore are unable to prepare a certain per cent. solution of a substance or to find the amount of a substance in an already prepared solution of known percentage.

A professor in one of our dental colleges, while delivering a lecture to the senior class, informed them that two and a quarter grains of cocain hydrochlorate in a drachm or eighteen

* *Dental Cosmos*, March, 1899.

grains in an ounce of water made a four per cent. solution. This statement, although practically correct, is rather arbitrary, and subsequent conversation with the class showed that only a small minority knew why it required this particular amount to make a four per cent. solution.

In the editorial previously referred to there is a paragraph which reads thus: "The Troy ounce of water, however, weighs 455.69 grains, so that if the percentage solution were to be made by weight, a one per cent. solution would be made by adding 45.6 grains to one fluid ounce of water." The above statement is not correct—evidently a misprint—but the present writer ventures to make the statement that a good-sized minority of the readers of that article took the figures for granted, and would not have been able to verify them if they wished. As a matter of fact, one per cent. of 455.69 grains is 4.5569 grains, or, by expressing it approximately, by cutting off three of the decimal figures, 4.5 grains instead of 45.6 grains.

The following is an attempt to review certain rules in percentage, which all dentists probably learned while in the grammar school, but which they now fail to apply practically. There are some who seem to think it a complicated process to find, for example, the amount of cocain hydrochlorate in an ounce of a four per cent. solution, but who could easily figure it out if they realized it was merely a simple example in percentage.

Per centum is from the Latin *per*, by, and *centum*, hundred, meaning by the hundred. Therefore, percentage is the process of computing in hundredths. The percentage of a quantity is so many hundredths of it, as is indicated by the per cent.—*i. e.*, two per cent. of a quantity is the same as two one-hundredths of the quantity. For example, a two per cent. solution means that there are two parts of a certain substance in one hundred parts of the solution, or, in other words, two-one-hundredths of this solution is composed of this particular substance.

Then, if per cent. is the number of hundredths, we may express it in the form of a decimal or common fraction—*e. g.*, one per cent. may be written .01 or 1-100; five per cent., .05 or 5-100; ten per cent., .10 or 10-100, and so on. The decimal form is generally employed in getting percentages, it being the shorter method. Let us get two per cent. of one hundred grammes both ways. Expressed in the form of a common fraction, the process is simply multiplying of a whole number by 2

fraction, and this is done by multiplying the whole number by the numerator and dividing the product by the denominator; thus: $100 \times 2 = 200$, and $200 \div 100 = 2$; the number of grammes in a hundred to represent two per cent.

Expressed decimally, it is the multiplying of a whole number by a decimal fraction. The rule is: multiply as in whole numbers, pointing off as many decimal places in the product as there are decimal places in the multiplicand and multiplier—*e. g.*, $100 \times .02 = 2.00$; the number of grammes in a hundred to represent two per cent. Always bear in mind the decimal point in getting percentages. Two per cent. cannot be written thus: .2; this would be two-tenths or twenty-one-hundredths, which is twenty per cent., and is expressed decimally thus: .20.

Now, if we all used the metric system (the only proper and scientific system), it would be simply a case of multiplication in making any per cent. of an aqueous solution of a solid, because the unit of dry and liquid measure corresponds—*i. e.*, one cubic centimeter of pure water at its greatest density weighs one gramme. For example, to make 30 cc. of a five per cent. solution of cocain hydrochlorate we proceed thus: $30 \times .05 = 1.50$, one and fifty-hundredths, or one and one-half grammes, being the amount of cocain hydrochlorate to use.

But when we use the apothecaries' weight and measure we find that the unit of weight (the grain) and the unit of measure (the minim) do not correspond—*i. e.*, one minim of water at its greatest density does not weight just one grain, but a little less. One fluid ounce of water contains 480 minims, but this will not weigh one troy ounce, or 480 grains, but 455.6 grains. Then it necessarily follows that if we weigh one substance and measure the other, we must convert the measured substance into weight before figuring the percentage. For example, to make a fluid ounce of three per cent. cocain hydrochlorate we would take the equivalent of a fluid ounce in grains, which is 455.6, and multiply by three, thus: $455.6 \times .03 = 13.668$, the amount of cocain hydrochlorate to use—practically thirteen and one-half grains. If you wished to make only one drachm of the solution, get one-eighth of 455.6, or 56.95, practically fifty-seven grains; multiply this by three, thus: $57 \times .035 = 1.995$, practically two grains.

It is customary in making aqueous solutions to measure the liquids and weigh the solids, but we could weigh both, and

then there would be no converting—*e. g.*, to make one troy ounce of three per cent. solution proceed thus: $480 \times .03 = 14.40$. Take 14.40 grains and add water to one troy ounce (480 grains), and we have a three per cent. solution, as in the previous example, but the finished product is not the same. In this case we have made a little more than a fluid ounce.

If we were using a two per cent. solution of cocain hydrochlorate for injection in tooth-extraction and our syringe held one-half drachm (30 minims), to find the amount of cocain hydrochlorate in each syringeful we would take the equivalent of thirty minims in grains, or 28.5, and multiply by .02, thus: $28.5 \times .02 = .570$, five hundred and seventy thousandths or fifty-seven hundredths, practically one-half grain.

Dentists should be able to reduce from a higher to a lower per cent., especially now that formaldehyd is being used quite extensively. Formaldehyd is found commercially in a thirty-five to forty per cent. aqueous solution. This is too strong for ordinary use. If our solution is forty per cent. strength, it is a simple matter to reduce it one-half with water and get a twenty per cent. solution; double this quantity again with water and get a ten per cent. solution, and so on. But if your solution is thirty-five per cent., and you wish to reduce it to a three and one-half per cent., for example, the process by the above method would not be so easy. There are several rules for reducing from a higher to a lower per cent., but the following is probably as simple as any. It is stated in proportion, according to the rule of three, thus: The per cent. of the stronger is to the per cent. of the weaker, as the quantity of weaker desired is to quantity of stronger required to produce it.

Now, to make a fluid ounce of three and one-half per cent. formaldehyd from a thirty-five per cent. we would state it thus: $35 : 3.5 :: 480 : X$. To find X, or the unknown quantity, we multiply the second and third terms and divide the product by the first term, thus: $480 \times 3.5 = 1680.0$, and $1680.0 \div 35 = 48$. Forty-eight minims, the amount of the thirty-five per cent. solution to use in an ounce of water to make a three and one-half per cent. solution. We convert the ounce into minims in the proportion, so as to get the product or unknown quantity in minims, instead of in a fraction of an ounce. Another: to make sixteen fluid ounces of a seven per cent. solution from a thirty-five per cent.— $35 : 7 :: 16 : X$ — $16 \times 7 = 112$, and $112 \div 35 =$

3.2. Three and two-tenths ounces, the amount of the strong to use.

Every dentist should have a knowledge of at least these two forms of per centage, and be able to figure them out himself and make the solutions, if necessary, without recourse to his apothecary.

Dental Cosmos.

CHLORETONE—THE IDEAL LOCAL ANÆSTHETIC IN DENTAL SURGERY.

Michael Leo, D.D.S., New York City.

Some time ago my attention was called to the superior advantages which chloretone possesses as a local anæsthetic. I had formerly used cocain, but lately abandoned it in favor of beta-eucain. I think cocain would have given satisfactory results if its toxic effect upon the heart had not so seriously inconvenienced my patients, and myself, as well. Indeed, I have been obliged to attend for hours upon persons who had been overcome by an injection of a solution of cocain.

I am firmly convinced that a simple operation, like the extraction of a tooth, does not justify the use of any drug that will give rise to such serious after-effects. Moreover, in many of my cases the use of cocain caused sloughing of the tissues, despite the usual antiseptic precautions.

After reading an article in the *Medical Record* for June 10th, 1899, on the subject of local anæsthetics, I experimented with beta-eucain in a large number of cases. This drug would have proved satisfactory, so far as its local anæsthetic effect is concerned, but its injection caused considerable swelling in the surrounding tissues. Patients would return and ask me the most disagreeable questions as, for instance, "Doctor, are you sure your needle was clean?" "Have I not developed blood poisoning?" and so on. The swelling caused by beta-eucain is painless, and seems to be harmless; but people do not like to be disfigured, even if only for three or four days, for usually the swelling subsides within that period, and the tissues again assume a normal appearance.

A pharmacist suggested to me that I make a trial of chloretone, a new local anæsthetic now coming into use in the hospitals and clinics, especially in minor surgery. Upon investiga-

tion I found that while chloretone is an efficient local anæsthetic, it has no toxic effect upon the heart, and it does not cause sloughing or swelling after its use. Thereupon, I procured an ounce of the crystals and made two solutions according to directions. One solution, to be used in extracting, was prepared by mixing 15 per cent. of alcohol with 85 per cent. of distilled water, and adding enough chloretone to make a saturated solution. I have used this solution in hundreds of cases, with perfect success, and I am prepared to say, as a result of my experience, that chloretone possesses all the good qualities of cocain and beta-eucain, and does not cause any of the objectionable effects of either.

The second solution, which was made by mixing equal parts, by weight, of ether and chloretone, proved very efficient as an obtundent in preparing painful cavities for fillings, especially when sensitive dentin was being operated upon; also in setting crowns and in bridge work, which often gives rise to considerable pain, caused by the action of the glacial phosphoric acid with which the cement is mixed. The ethereal solution of chloretone should be employed by the careful practitioner when a live pulp must be removed. This can be done immediately and painlessly, after a thorough application of the solution.

I append brief notes of a few of my cases, for the benefit of the profession, and I hope that my experience will prove valuable to my confreres.

Mrs. S. B. Right upper third molar; pus sac. Injected 25 minims. Extraction after one minute. Three attempts were necessary, as the tooth was wedged and hard to extract. The patient experienced very little pain, even though it required almost three minutes to complete the operation.

W. S., aged eleven year. Right lower six-year molar; two pus sacs. Fifty seconds after injection tooth extracted. Very little pain.

Mrs. L. Left upper second bicuspid; pus sac; chloretone injection, 20 minims. Extraction after one minute. No pain at the time or afterward.

M. L. Left lower second molar; two pus sacs were painlessly lanced fifty seconds after injection. Extraction with slight pain. After-pain ceased within five minutes.

O. F. Left upper first molar; two pus sacs. The pain of the alveolar abscess was intense, but ceased fifteen seconds

after injection. The tooth was extracted with very little pain, as the patient affirmed.

C. D. Left upper third molar; pulp exposed; chloretone injection and painless extraction after fifty seconds

A. R. Left upper second molar; alveolar abscess was lanced. Pain ceased after injection. Fifty seconds after painless extraction. Some months later this patient said the extraction was very neatly and painlessly done.

M. McG. Anterior root of left lower first molar; pus sac. Forty seconds after injection, painless extraction. No after-pain so characteristic of alveolar abscess.

Miss E. L. Left upper lateral incisor; right upper lateral incisor. Injected 20 minims chloretone solution. One minute afterward painless extraction.

Mrs. D. M. I injected the ethereal solution of chloretone into the pulp of a right upper cuspid. As the needle of the syringe advanced into the pulp chamber, I pressed warm wax around it, thus closing the cavity so that the liquid could not escape. Forty seconds later I withdrew the instrument and wax, to permit the ether to evaporate. I also used the precaution to place the solution in a small test tube, which I held in my hand. Thus I was enabled to keep the temperature of the fluid at blood heat in order not to create pain by the injection of the cold solution.

I then removed the pulp with a broach one minute after the injection. The patient stated that the operation was painless.

Miss L. D. Right second bicuspid. Right cuspid; 20 minims chloretone solution; painless extraction fifty seconds later.

F. P. Right lower cuspid; sensitive dentin. The mere touch of an instrument seemed to be unbearable. Ethereal solution of chloretone applied until white crystals deposited. I then proceeded to excavate. After a while it was necessary to repeat the application of chloretone, when I was enabled to complete my work without complaint from the patient.

M. M. Left lower six-year molar; pulp exposure. Extraction, with very little pain, forty seconds after injection of chloretone solution.

M. D. Right lower first molar; exposed pulp. Chloretone injection; after forty seconds painless extraction.

F. P. Extraction left lower first molar; pus sac. Injec-

tion of 20 minims chloretone solution. In fifty seconds painless extraction. No after-pain.

M. R. Left upper third molar. Injection of 25 minims chloretone solution. After fifty seconds, painless extraction.

F. J. Right lower second molar; pus sac. Injected 20 minims chloretone solution. After fifty seconds, painless extraction. I might add that the pain of the abscess ceased at once after the chloretone had been injected.

F. P. Setting of gold crown, which was of necessity inserted deep under the gum in order to reach the edge of the root—a second lower left bicuspid. I applied the ethereal solution of chloretone on a cotton pellet, until the white crystals were visible upon the gum. The crown was then set without pain. A few days before I became acquainted with the anæsthetic properties of chloretone I placed a crown in a case similar to this one; the operation was very painful, on account of the action of the glacial phosphoric acid in the cement, it being necessary to use a very thin solution. *Items of Interest.*

GUTTA-PERCHA.

There are important distinctions between India-rubber and gutta-percha, and in the majority of purposes for which they are employed, one cannot replace the other. The trees yielding India-rubber are well distributed over the tropical parts of the world and may be cultivated with more or less facility, but the tree which furnishes gutta-percha is to be found only in Borneo, Sumatra, and the Malay Archipelago generally. Present methods of collection, in spite of government interference, tend to destroy the trees, and also enable the native collector to mix the milk of the first quality with commoner and often worthless sorts. In Borneo, the milk, which is called "susu," is purchased from the natives by buyers, and is then coagulated by pouring the milk into boiling water without the aid of chemicals, as in the case of India-rubber.

In regard to the acclimatization of the gutta-percha tree, known as the *Isonandra gutta*, in other parts of the world, there does not seem to have been any marked success, and the French experts state that the climatic conditions required by the tree are for the most part not to be found in the French colonies.

Important tests are being made with a new gutta-percha plant from northern China, now under cultivation at the Colonial gardens in Paris, whose fruit is said to contain 27.34 per cent. of gutta of fine quality, but they have not as yet progressed sufficiently to enable definite conclusions to be reached. Gutta-percha is said to contain from 20 to 40 per cent. of resins, which, when found in the smaller quantity specified, do not affect its properties as an insulator, but which must be removed entirely when the material is used for golf-balls. It is reported that 500 tons of gutta-percha are used annually in England for the manufacture of golf-balls, for which, as yet, no satisfactory substitute has been found. In making the French cable from Brest to New York, 550 tons of gutta-percha were used, and in the new Pacific cable it is expected that a still greater amount will be employed.

WHY BILE IS BITTER.

Sir Thomas Lauder Brunton (*Clinical Journal*, January 10th), in an address on "Bile, Biliousness and Gallstones," recently delivered before the Northwest London Clinical Society, says:

"Some years ago an investigation was made into the physiological action of certain substances that are formed by splitting up albuminous articles of food during the process of digestion, and it was found that the foods that we eat are capable of yielding poisons that will destroy us if they pass directly into the circulation. But, as a rule, they cannot do this; they have to pass through the liver on their way, and there some of them are caught, and passed back by the liver into the intestine with the bile, while others are actually destroyed. This is true not only of the poisons formed from food, but of actual poisons formed in other ways, such as the Indian poison, curara, and others of like kind. Now, we usually say "as bitter as gall," and we are accustomed to associate bitterness with bile. But fresh bile is not bitter. I was once making some experiments on myself regarding the action of digitalin, and I took a big dose, so big that I nearly, but not quite, killed myself. It made me very ill, however, and I vomited violently. I brought up something which appeared to be undoubtedly bile, because it was like yolk of egg, and it could not be anything else, but it lacked the characteristic bitterness. Now this bile was probably freshly formed. In the

ordinary course of things it would not have been vomited, but under the influence of the poison it was brought up. Some time afterward I had a letter from a doctor who had under his care a patient with a permanent biliary fistula, and he discovered in his patient also that fresh bile is not bitter. Whence comes the bitterness, then, that is associated with the name of gall? In all probability it comes from the absorption from the intestine of bitter substances formed during digestion. These are absorbed by the portal system, carried to the liver, and stopped there on their way into the general circulation, so that, instead of being allowed to proceed on to the heart, to the brain, and to the various organs of the body, these bitter substances are turned back and are excreted again in the bile. You can see, then, that if bitter substances are constantly being formed in the intestine by the process of digestion, and constantly being absorbed and turned back in the bile, the bile itself will become very bitter after a certain length of time, varying with the amount of these bitter substances. And this, I believe, is the cause of the bitterness of bile and what we call biliousness. I believe that after a while the power of the liver to arrest these substances is exceeded, and that it cannot pass them all back. Consequently, some go on and give rise to symptoms of poisoning."

New York Medical Journal.

THE TEETH IN CIVILIZATION AND BARBARISM.

It was somewhat startling to learn that many candidates offering themselves for service in South Africa were rejected by the authorities on the ground that they had bad teeth. In former days, when the cartridge had to be bitten, a soldier with bad teeth was a mere consumer of rations. The healthiness of the teeth may be taken as an index of general health and nutrition, and when the diet consists mainly of hard biscuits, the importance of healthy incisors becomes very marked. It is an essential requirement on the part of young women applying for the office of nurses that they shall possess good teeth. The importance of this cannot be overestimated, and we are glad to note that a periodical inspection of the teeth of school children is about to be made. Mr. Denison Pedley some years ago inspected the mouths of 3,145 children. Of this number only 707

had healthy teeth. Among 110 children of four years old no less than 290 teeth were diseased. At nine years 390 children were each found to have three bad teeth on an average. The causes of diseased teeth are very complex; popularly it was assumed that sugar caused the teeth to decay, although on that theory it was difficult to understand why savages, who live largely in sugar districts and are constantly nibbling sugar-cane, scarcely ever have a bad tooth. It is difficult, also, to explain why animals living in a state of nature seldom suffer from diseases of the teeth. Man seems to be an exception. Even among the heads of ancient cave dwellers and in the mummified skulls of ancient Egyptians traces not only of bad teeth are found, but relics which clearly show that at that time people were alive to the importance of dentistry. It appears that so long as our forefathers lived in a condition of healthy barbarism the teeth remained perfect; it is refinement of eating and drinking especially which damages the teeth. The following description of the antiquity of the dentist's art is taken from an interesting article in *The Evening Standard*: "The dentist's art is very old. In the museum at Boulak, now removed to Cairo, there were mummies whose teeth had been 'stopped' with gold. They show Greek skulls thus treated, in the museum at Athens, and Etruscan at Bologna. And in all these instances the operation has been performed with skill and neatness. False teeth also are not unknown. Probably the Egyptians were first to practice scientific dentistry, since they first had need of it. That civilization injures the teeth is a rule so universal that even the qualified form of it established in Peru under the Incas produced the same effect. And there also the process of 'stopping' was discovered, under pressure of necessity."

At Quito is preserved the skull of some great personage whose vaulted tomb was full of treasure. It contains a "false set" complete, kept in place with gold wire drilled into the cheek bone! We regard the teeth as a great beauty; it is sufficiently uncommon to be valued. But savages, among whom disease, irregularity, or discoloration are scarcely to be found, think so little of it that they give themselves great pain and trouble to destroy the perfection which nature supplies. Some carefully grind away the enamel, others file the incisors to a point, multitudes in every quarter of the world knock some of them out or break them off. It is recorded by the veracious Caillié that

the Moors of Timbuctoo positively admire an imperfection which French caricaturists treat as characteristic of ourselves. A girl who has the two front teeth projecting is thought lovely, and "ambitious mothers employ all possible means to make their daughter's teeth grow in this manner." In all Malay countries, an enormous area, peopled by many millions, the children's teeth are blackened at a certain age. In the house of a white resident one may see occasionally a favorite boy or girl who has been preserved from the operation—with no small trouble if he or she have parents in the neighborhood; the pretty white teeth of such a child seem almost startling among the black of the other servants. But it is not to be hoped that the charm will endure; so soon as the boy begins to feel an interest in the other sex he is ashamed of it—as for the girl, she cannot hope for a husband until she has undergone the process. White teeth are as distasteful to these people as black to us; they are called "pigs' teeth." But also Malays file off the enamel—perhaps to take the dye; one operation suffices for a lifetime. Gradually the juice of the betel nut, which they chew all day and much of the night, works in, with very curious results. The teeth become iridescent like bits of glistening foil. We never heard that this was thought an additional attraction, but it is likely enough. In Borneo, besides these vagaries, a man will sometimes drill a hole into each of his front teeth and insert a pin with a little brass knob; in the famous collection of Dr. Davis was a skull in which six teeth were ornamented thus. Conceive the horror of this person's smile! Finally, there are savages who suppress their teeth altogether. Many knock out a proportion, but the Lampings of Sumatra rub them down with a whetstone until they are even with the gums.

Physician and Surgeon.

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

THE DENTAL BRIEF AT THE INTERNATIONAL DENTAL CONGRESS.

Our readers will be glad to learn that at the International Dental Congress to be held in Paris, beginning on the 8th of the present month, the BRIEF will be represented by Dr. I. Norman Broomell, who will furnish for publication in this journal a series of reports of the clinics, papers and general proceedings of the Congress.

The interest and value of these reports will be enhanced by illustrations from Dr. Broomell's camera of such features of the Congress as lend themselves to photography.

Readers of the BRIEF, who will thus, in a sense, visit the Congress with him, will be interested in the excellent portrait of their traveling companion, which appears as a frontispiece to this issue. The first report of the series will appear in the September number.

THE THIRD ANNUAL MEETING OF THE NATIONAL DENTAL ASSOCIATION.

The third annual meeting of this representative organization was held at Old Point Comfort, Va., commencing Tuesday, July 10th, 1900, under auspicious conditions. While the meeting lacked the large attendance and some of the more attractive features of the gathering at Niagara Falls last year, still there was much to interest in the papers read and much to instruct in the clinical exhibits and demonstrations. Indeed, the latter

features alone must have amply repaid those who availed themselves of their opportunities, for the time spent and expense incurred in attendance on the meeting.

The address of the President, Dr. B. Holly Smith, was thoughtful and suggestive, and many of the papers contained features of permanent value to dentistry. Special interest was manifested in the paper of Dr. Mary E. Gallup, of Boston, on "Art in Prosthetic Dentistry," in which a forcible and eloquent plea was made for higher ideals in art as applied to dental prosthesis, and an abandonment of the unlikelike product of the machine-made mould for a denture in which mechanical crudities are transformed by the trained touch of the human hand into a thing in harmony with nature, and beautiful in itself because fashioned after nature by art.

The paper of Dr. C. N. Johnson on the "Advantages and Disadvantages of Inlays" excited considerable attention because of its opposition to the recent trend of practice in regard to inlays. Dr. Johnson took the position that they possess so many defects as to render them prohibitory in a majority of cases, and that they are useful chiefly, if not solely, in cavities "not exposed to attrition, but fully exposed to view." For conspicuous cavities, subject to attrition, fillings of gold and platinum were recommended as giving the maximum of strength combined with the minimum of unsightliness; while in large open cavities in molars and bicuspid inlays of solid gold were commended as being an effective and satisfactory compromise between the laborious and time-consuming requirements of a gold filling and the undesirable sacrifice of tooth substance necessary for the placing of a crown. These contentions seemed to meet with quite general commendation during the course of the discussion.

The address of the President, Dr. B. Holly Smith, contained suggestions of so much value that an abstract of its more salient features is here presented:

Dr. Smith stated that though but three years had elapsed since the organization of the National Dental Association as

at present constituted, it had secured the confidence and esteem of the entire dental world. He regarded it as of vital importance to the purposes of the Association to establish and strengthen an influential if not authoritative relation between this and other dental organizations, such as the National Association of Dental Faculties, the National Association of Dental Examiners, the Institute of Pedagogics, and State and local societies generally. Such a relationship, he thought, would strengthen immeasurably the influence and helpfulness of the national organization, and give force and power to its edicts, both at home and abroad.

With a view to promoting the full fraternization of dentists throughout the world the establishment of associate membership of non-residents was also recommended, such membership to be filled by appointment or election by foreign societies. By this means the good work already initiated by the Committee on Foreign Relations of the National Association of Dental Faculties and the American Society of Europe would be promoted and would be further advanced if, at the meeting of the International Dental Congress in Paris in August of the present year, formal expression was made of a desire on the part of the National Association to establish permanent relations of affiliation with the various dental organizations of the world.

To promote the educational value of Association work the appointment of commissions by the various sections was recommended, whose function should be to collect data and prosecute research; they should make a careful examination of all papers presented and read at the annual meeting of the Association, and give a succinct report of essential deductions and the essence and outcome of the work of the year. Such reports, if thought proper, to be made inclusive of deductions from work done before other organizations.

The preliminary training of the dental student was suggested as a fitting subject for the consideration of one of these commissions, as the dignity and influence for good of the profession depend upon the character of the men who are year by year added to its ranks. Protest was entered against the tendency to lightly regard mechanical ability and to erect an arbitrary and false division between such ability and intellectual power. Many of the men who have had the advantages of extended so-called mental training, and who possess the degrees conferred by colleges and universities as an evidence of such training, make the most impossible of all material out of which to make dentists; the fault being that the motor centers have been neglected. He had found that the best all-round men were those whose motor nerve centers had been developed by mechanical training in youth. At present few, if any, dental students pursue preliminary studies in manual training schools or institutes of technology, and such institutions, he believed, could

be made to do good service in fitting students for the subsequent study of dentistry.

These suggestions were reinforced by extracts from the contributions of various educators and psychologists emphasizing the importance of training the motor centers as a means to stimulating the will, judgment and memory, thus exercising a formative influence upon the development of the mental character as a whole. By these authorities it was shown that as primarily the motor area of the brain is fully one-third the entire area, to train it imperfectly involves an exclusion of fully one-third of intellectual capacity, power and enjoyment.

As relates to the material welfare of the individual members of the dental profession the claim was made that while dentistry has grown into a position of assured appreciation, still its best men, as compared with those of like rank in other callings, are but poorly paid, a fact attributed to the low general estimate by a majority of dentists as to what compensation good attention should command.

Fees lack uniformity often because of failure to compare notes. Skilful young men often begin the practice of dentistry without any familiarity with custom as to fees. In many sections it is not customary to make a charge for treatment or consultation. The tabulation of statistics as to fees, the information to be obtained from four or five men of good standing in all the larger cities of this country and Europe, was recommended; such data to be published in pamphlet form by the Association.

Regret was expressed that the bill for the appointment of dentists in the army failed of passage. A continuance of effort was urged and the retention of the present committee of three recommended. It was also suggested that the Association give its formal endorsement to three candidates to be selected for the supervisory positions provided for in the bill.

The National Dental Association numbers among its members many able investigators, and its treasury holds a liberal endowment; hence it has long been felt that a larger share of its potential energy, personal and monetary, should be expended in original investigation. For this reason the feature of President Smith's address which aroused the most interest was the recommendation for the appointment by the various sections of commissions for the prosecution of original research. It is gratifying to know that this suggestion was promptly acted upon by the Association, and it is confidently believed that, if properly prosecuted, the labors of these commissions

will result in substantial gain to dentistry, both as an art and science, if not by the discovery of new facts and principles, at least by the more thorough systematization of our present knowledge and the more definite and authoritative formularization of existing modes of practice.

The next annual meeting of the Association will be held in Milwaukee, Wis., beginning on the first Tuesday in August, 1901. Dr. G. V. Black, of Chicago, whose reputation as investigator, teacher and author is world-wide, was unanimously elected President of the organization for the coming year.

THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The seventeenth annual meeting of the National Association of Dental Faculties was held at Old Point Comfort, Va., on July 13th and 14th, 1900. The meeting throughout was characterized by harmony and good feeling. On motion of Dr. Barrett the following resolution was adopted:

"The minimum preliminary educational requirement of colleges of this Association, beginning with the session of 1902-1903, shall be a certificate of entrance into the third year of a high school, or its equivalent. The preliminary examination to be placed in the hands of the State Superintendent of Public Instruction."

This change in entrance requirement is in conformity with the progressive advance to a higher standard to which the Association is committed, and which is demanded by every consideration of professional and public policy.

The next annual meeting of the Association will be held at Milwaukee, beginning on Thursday of the week immediately preceding the meeting of the National Dental Association. The President for the coming year is Dr. B. Holly Smith, of Baltimore.

THE ANNUAL MEETING OF THE STOMATOLOGICAL SECTION OF
THE AMERICAN MEDICAL ASSOCIATION. .

In this issue of the BRIEF appears the first of the series of papers read as a part of the symposium on dental education at the recent meeting of the section on stomatology of the American Medical Association. They will be followed by the other papers, or abstracts thereof, and by a special stenographic report of the discussion which ensued.

This symposium, as well as that which succeeded it on interstitial gingivitis, developed so much of interest and value to the dental profession that it is believed that the publication of the proceedings should not be confined to the official organ of the society, the *Journal of the American Medical Association*, which has a relatively limited circulation among dentists, but should find a place in dental journals as well.

It is to be regretted that the meetings of the stomatological section are not more largely attended by our representative dentists. In a most liberal spirit the American Medical Association has made fully eligible for membership in that section all qualified dental graduates, whether holding the doctorate in medicine or not. It is a good thing for specialists of every kind to occasionally get out of their relatively narrow groove of interests and look upon the broader vistas of medicine as a whole, and thus correct those too prevalent aberrations in the sense of proportion which result in the distorted conviction that the part is greater than the whole.

The most interesting and valuable exhibition arranged by the section on pathology of the Association received unbounded commendation and constituted in itself an ample compensation for attendance upon the meeting. The exhibit contained examples of nearly all known forms of pathological growth found in the human organism. A large number of eye specimens, beautifully mounted under glass, clearly demonstrating all the typical disorders and diseases to which that organ is subject, were on exhibition. Under numerous excellent microscopes

were shown many specimens illustrating the various abnormalities of the blood, as a malaria, chlorosis, progressive pernicious anæmia, etc. By aid of the Ives "Kromskop" pathological specimens were displayed in the full freshness of their distinctive colors, while cutaneous disorders were illustrated by a long series of life-size photographs.

Of popular as well as professional interest was the large exhibit, furnished by Dr. D. E. Salmon, Chief of the United States Bureau of Animal Industry, of the pathological conditions found in meat inspection. These specimens were collected in abattoirs throughout the country and sent to the place of meeting in cold storage. They constituted an appalling object lesson as to the contaminations to which our food supply is subject, and in a fashion which required no further emphasis enforced the need for a more rigid inspection of all animal food than is at present generally exacted.

Why cannot the chief features of the pathological exhibit at Atlantic City be duplicated at the meeting of the National Dental Association next year, reënforced, of course, by specimens illustrating the pathology of the mouth, teeth and maxillæ? It is to be hoped that the section in pathology will take this suggestion into serious consideration. Specimens, under proper guarantee as to their safe return, will doubtless be cheerfully loaned by the curators of colleges, museums and pathological laboratories, as well as by private practitioners, and thus can be secured an exhibit which will not only ensure an increased attendance and an enlarged membership, but will be a broadening educational power.

CORRESPONDENCE.

MEETING OF THE PENNSYLVANIA STATE DENTAL SOCIETY.

After a ride of two hours by steam and twenty minutes by trolley from Philadelphia, I arrived at one of the most picturesque spots in Eastern Pennsylvania, Neversink Mountain, at which place the Pennsylvania State Dental Society was holding its annual meeting. A stroll through the corridors and about the porches of the hotel, and a glance at the assembly room, gave me the assurance that the meeting was to be one of unusual interest. Being one of the late arrivals I was denied the privilege of attending the morning session and a greater part of the afternoon session of the first day, and as a consequence I failed to hear the President's address and the papers of Dr. J. J. Burke, of Mahanoy City, on "The Best Filling Material for Temporary Teeth," and Dr. L. Webster Fox, of Philadelphia, on "Gold Blindness, or Retinal Asthenopia and Its Treatment."

From those who were fortunate to be present at these sessions I learned that the address of President Huey was one worthy the occasion, containing many timely references to professional matters of importance which have transpired during the past year, together with some wholesome suggestions for the future.

At the close of the afternoon session there was a general reunion of those present, handshaking and well-wishing being the order of the hour. To those who habitually attend these gatherings, the social feature makes a strong appeal, and this year more than ever it was paramount. By this I do not mean to intimate that the meeting was made up of those who came simply *pour passer le temps*, on the contrary, never in the history of the Society were the sessions better attended or the interest more profound.

All parts of the State were represented at this meeting, the large cities, the small cities, the borough and the country town alike contributing to the success of the occasion. Two patriarchs of the profession who seldom fail to attend the State meetings were present in the persons of Drs. Jesse Green, of West Chester, and Henry Gerhart, of Lewisburg, the former

having celebrated his fiftieth year in practice some five or six years ago, while the latter will have reached the half century mark in May of next year. These of course are but matters of record, but there are many attributes and qualities in the lives of these two men to be admired, much that cannot be measured by count. Many members of the Society were glad to welcome Dr. H. D. Knight, of Lancaster, a past president of one of the oldest if not the oldest dental society in the State, the Harris Dental Association.

The evening session of the first day was taken up by the reading and discussion of a paper by Dr. Grant Mitchell, of Pittsburg, "Are the Morbid Processes Variouslly Designated Interstitial Gingivitis, Phagedenic Pericementitis, etc., Inflammatory or Necrobiotic?" This paper was particularly well received, dealing with the subject as it did in a generous way as to previous writings on the same theme, but still presenting much that was new. The paper was followed by an interesting discussion.

Friday morning was devoted to clinics, and in this connection the fact should be noted that out of eight or ten persons who had expressed to the Chairman of the Clinic Committee their willingness to be present as clinicians only two or three put in an appearance. Such action upon the part of members and others cannot be too strongly condemned. This is not a new feature by any means, and it is not confined to the Pennsylvania Society, but appears to be a much-abused privilege among dental societies in general, and should be corrected. The clinics given were principally confined to methods of procedure in porcelain inlay work, and they appeared to be of much interest and profit to the onlookers.

The first paper of the afternoon session of the second day by the writer of this brief report, entitled "The Water-Bag Method of Making Porcelain Inlays," evoked some discussion. Dr. Joseph Head, of Philadelphia, as an expert in this work condemned the method *in extenso*. The stand taken by Dr. Head, however, failed to fully impress the entire assembly, and many of those present were inclined to the belief that the method had some good qualities.

Dr. W. J. Roe, of Philadelphia, read a paper on "Hypertrophy of the Gums," and exhibited an interesting case in a boy 14 years old, previous to operation. By the aid of the micro-

scope the speaker exhibited sections of epithelium, showing many of the pathological characteristics of this gingival disturbance.

The final paper of this session was that of Dr. S. B. Luckie, of Chester, on "Relations of the Pulp to the Apical Region." For unavoidable reasons, and much to my regret, I failed to hear this paper. The subject is one of deep interest and unbounded importance, including as it does a field for earnest research. Its publication will be anxiously looked for.

At the Friday evening session Dr. M. H. Cryer, of Philadelphia, entertained the society with an illustrated lecture, his subject being, "Some Variations in the Anatomy of the Facial Region." It is needless to comment on the nature of the reception accorded this speaker. The work of Dr. Cryer in his special line is so well known and so fully appreciated that I can add nothing to what has already been said in his praise. At the conclusion of the lecture the portraits of a number of honored members of the profession, both living and dead, were projected upon the screen.

After the reading of a paper by Dr. C. V. Kratzer, of Reading, on "Dental Dispensaries," at the final session on Saturday morning, the election of officers and announcement of committees brought to a close a most successful convention, remarkably so when it is considered that the National meeting followed so closely upon it. The next meeting will be held in Pittsburg in July of next year.

I. N. B.

PULP MUMMIFICATION.

EDITOR OF THE DENTAL BRIEF:—In the March, 1900, number of THE BRIEF, I note with a great deal of interest your editorial on "Pulp Mummification;" also Dr. Gebhardt's paper on the same subject read before the Wisconsin State Dental Society in July last.

For the last sixteen months I have been using the same formula for mummifying paste, and, I must say, with entire satisfaction—although my methods of procedure differ considerably from those laid down by Dr. Soderberg. I think you will agree that not every operator can remove the pulp from all and any pulp-chamber, but of course we meet one occasionally who

claims to be able to do so. I can hardly believe that Dr. Soderberg would have us leave the contents of root-canals untouched and proceed to fill, either by using mummifying paste or any agent that might be discovered.

My method is as follows, and I believe (after using it in no small number of cases—many of them where other methods had failed) that I may pronounce it a success:

After devitalization, using the formula below for nerve paste—

Arsenous acid,
Cocain hydrochlorate, āā. gr. x.
Carbolic acid q. s. to make a paste.

I open up the pulp-chamber, thoroughly removing all and every particle of the pulp possible, by use of barbed nerve extractors, etc.—my aim being first, to remove every vestige of the pulp I can; second, to know that the pulp is totally devitalized. I then check the hemorrhage, if any, dry the chamber as best I can, wipe out with some one of the essential oils or Blacks 1, 2, 3, introduce the mummifying paste at the consistency of thick cream, and then insert gutta-percha nerve points previously selected to approximate length and diameter of pulp-canals; then wipe away all surplus paste, and cap canals with best cement, after which the permanent filling is introduced. If the mummifying paste becomes hard and brittle, soften with a few drops of glycerine.

I realize that this method might meet with success even without the use of mummifying paste, but if there is one fibre of the pulp left in the canal I prefer to use the paste. I am of the opinion that there can be no shrinking or shriveling in cases treated as above, because, first, we remove all or most of the fibrous matter; and second, we do not fill the entire chamber with mummifying paste, but simply use it to quiet a few fibres that cannot be removed. A tooth can be opened in twenty minutes should subsequent trouble occur.

I think we will all agree that a pulp-chamber should be filled its entire length by some substance that will not disintegrate, and that is compatible with tooth structure. I only use mummifying paste when I am in doubt as to the removal of the entire pulp.

F. S. Cloud, D.D.S., 953 Broadway, New York City.

OBITUARY.

E. HENRY NEALL, D.D.S.

On Sunday morning, July 8th, there died one of Philadelphia's well-known dentists, Dr E. Henry Neall, in the 63d year of his age, at his late residence, 114 E. Washington Lane, Germantown.

Dr. Neall studied the art of dentistry in the office of his father, Dr. Elijah M. Neall, a pioneer in the profession. His specialty was the carving and baking of block teeth, and he was recognized as an expert along that line.

As late as 1899 he gave demonstrations in that difficult dental branch before the students of the Medico-Chirurgical College.

Practicing long before a college diploma was thought necessary, Dr. Neall nevertheless, recognizing the advantage of possessing the same, matriculated in the Pennsylvania College of Dental Surgery, from which he graduated in 1868.

Many little devices and labor-saving tools, in connection with his beloved profession, can be traced to his ingenuity and fertile brain. He was ever active in dental society work and was a member of the old Pennsylvania Society, the Odontological Society and the Pennsylvania State Dental Society.

Besides this, he gave of his services at frequent intervals to the dental students, being upon the clinical staff of both the University of Pennsylvania and the Medico-Chirurgical College.

Dr. Neall was a Christian gentleman in the fullest sense of the word. He was a member of Calvary P. E. Church, Germantown, and an earnest worker in the Brotherhood of St. Andrew.

During the war he went to the front with the Christian Commission to relieve the sick and suffering soldiers.

Dr. Neall was twice married, his first wife being Miss Elizabeth Enyard Montgomery, of Philadelphia; his second wife, formerly Miss Emily L. White, also of Philadelphia, survives him.

He leaves six children by his first wife, Dr. Walter H. Neall, Mrs. W. K. Matsinger, Robert M. Neall, Mrs. Charles J. Pilling, Benjamin T. Neall and Miss Edith Neall.

COLLEGE COMMENCEMENT.

THE LOUISVILLE COLLEGE OF DENTISTRY.

The fourteenth annual commencement of the Louisville College of Dentistry was held June 27th, 8 P. M., at Macauley's Theatre. The graduating class, numbering forty-five, represented twelve different States. The time of session has been changed and the next term begins October 10th.

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

- 32715, Design, dental cabinet, Wm. E. Harper, Chicago, Ill.
650464, Dental bite-plate, Louis F. Hough, Hamilton, Va.
650400, Device for swaging dental cap-crowns, George F. Krieger, assignor of one-third to A. B. Horn, Chicago, Ill.
650467, Hand-press for making metal caps, George F. Krieger, assignor of one-third to A. B. Horn, Chicago, Ill.
650685, Dental tooth-crown stamping machine, Norman S. Lea, Charleston, S. C.
651753, Dental compound, Benjamin C. Fowlkes, Mobile, Alabama.
651469, Dental motor, Oscar H. and A. F. Pieper, Rochester, N. Y.
651388, Artificial tooth, Finis E. Roach, Chicago, Ill.
651922, Dental instrument, Wm. E. Harper, Chicago, Ill.
652047, Artificial tooth, Nelson T. Shields and G. F. Jernigan, New York, N. Y.
652197, Dental heater, Willie F. Slack, Northwood, N. H.
652719, Fan attachment for dentists' fountain-spittoons, Jacob F. Mayer, assignor of one-half to J. M. Cornyn, Philadelphia, Pa.
652404, Dental appliance, Lee C. Sharp, Omaha, Neb.

TRADE-MARKS.

34765, Certain named dentists' supplies, Dental Protective Supply Company of the United States, Chicago, Ill.

Copies of the above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

Questions and Answers.*

In reply to query number 95 in the July number of the DENTAL BRIEF concerning the loss of a freshly devitalized inferior cuspid after the canal had been treated and filled with cotton and cement:

The first question one might ask is: Was all of the pulp tissue removed from the canal? The doctor says he removed it with a Gates-Glidden drill, and that he could "get readily at the canal," not into the canal, for he says the cavity was in the mesial surface, which might have interfered with a direct line of action throughout the entire length of an attenuated and perhaps crooked canal. Assuming that a small quantity of dead pulp was left in the canal it is not difficult to account for the suppuration which followed five weeks after the operation.

The second question is: Was the "cement" carried on a few fibers of cotton, the best material for *immediate* root-canal filling?

The third question is: Was the canal in question filled throughout its entire length?

There is probably no method in vogue that will always "positively and infallibly" prevent such a condition of affairs as the doctor has mentioned.

My experience, however, would have prompted me in such a case to have utilized the chemico-metallic method. Its superior germicidal, mummifying and physical qualities would have rendered such a canal permanently aseptic, and have very much diminished the chances of after-trouble.

Benjamin W. Smith, New York.

Apropos of question 85 in the April DENTAL BRIEF, signed C. E. K., concerning a right inferior bicuspid, its treatment and the after-trouble which occurred. The fact that the tooth "was loose" and that pus was found at the apex would seem to indicate either the presence of a blind abscess or a condition of chronic pericementitis.

*Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Of all the semi-dead teeth we are called upon to treat the first inferior bicuspid is likely to cause the most trouble. As a rule a tooth containing a putrescent pulp and mephitic gases, partially distended, tender to the touch, with more or less pericementitis, should not be treated to any very great extent at the first sitting.

Open into the pulp chamber and remove the *pulp in the pulp chamber only*; apply counter irritation, if necessary, introduce a loose pellet of cotton and dismiss the patient for twenty-four hours.

Where the so-called "blind abscess" exists, or where from an internal putrid condition of the root-canal and the pericementum in an irritable condition, a predisposition to inflame makes after-trouble very probable. The condition of affairs is chronic or subacute. Overmedication, or the premature and careless introduction of steel broaches into the canal, in fact anything which adds the slightest burden to the unhealthy and irritable pericementum is very apt to lead up to an *acute stage*—the sequel being congestion, inflammation and ulceration of the surrounding tissues.

No system, however, was ever devised for the treatment and filling of root-canals, in the writer's opinion, that will preclude the possibility of root disturbance in some cases after the filling.

G. W. Weld, D.D.S., M.D., New York.

Question 97. I would like to have some information on the following condition, which I think you will admit frequently happens, and I am sure I seldom see it discussed. In opening up pulp canals which are more or less tortuous, or in cases where pulp stones are present, the drill may pass through the wall of the root into the process, resulting in more or less inflammation of a character difficult to control. What is the best treatment?

J. Wycliff Marshall, Owen Sound, Ont.

Question 98. Will you please give your preferred method for the removal of a Richmond crown? I refer to a case in which the porcelain is broken and it is desired to replace with new facing.

Your question is hardly sufficiently definite in character to give a very decided answer, one that would be applicable to all teeth. In the first place the tooth involved decides whether or not the rotation method may be employed. If the extremity of the root is almost a perfect circle, the method of grasping the

remaining portion of the crown, that is the metallic portion, with a pair of extracting forceps may be used with considerable satisfaction, placing one beak of the forceps against the flat side of the backing and the other against the convex body of solder. By a firm grip and with careful rotation the crown will in most instances gradually succumb; of course the amount of force employed must be limited.

Another method, but one which has many disadvantages, is to drill through the base-plate of the crown either from the labial or palatal side, and in this way sever the post from the crown proper. This of course involves the loss of the post and frequently causes considerable trouble in its removal from the root, besides necessitating the replacement of a new pin to the appliance. Where the crown is set with gutta-percha, sufficient heat may be applied to the crown to soften the attaching medium and the crown removed in this way. The circumstances are so variable in such conditions that no fixed methods can be given.

Question 99. Within the past two or three years there has been published in nearly all the dental journals a formula for mummifying paste, as follows:

R.	Dried alum,	
	Thymol,	
	Glycerol.....	āā ʒj.
	Zinc oxid, q. s. ad. stiff paste.	M.

What is the preparation here described as glycerol? Geo. B. Evans, of Philadelphia, has filled the prescription for me, but none of the other druggists seem to know what the preparation is. They say there are many glycerols, just as there are many tinctures.

J. C. N., Altoona, Pa.

Practical Points.*

A Preventive of Grating the Teeth During Sleep.—Open the bite at night by means of caps fitting over the bicuspid and molars.
Items of Interest.

Removal of Green Stain.—Apply iodine to the stained surface, followed by weak aqua ammonia, repeating until the stain disappears. Recurrence will be proportioned to the subsequent care given the teeth.
S. B. Palmer, Ohio Den. Jour.

Medicinal Vapors.—An excellent method of introducing medicinal vapors into root-canals is by heating an ordinary syringe in the flame and then drawing a drop of the medication into the syringe, returning it as vapor.
W. St. George Elliott, International Den. Jour.

To Prevent "Gagging."—Bromidin, in half teaspoonful doses every four hours for two days before operating, benumbs the sensory nerve tips of the buccal cavity and thus facilitates taking impressions or adjustment of rubber-dam, otherwise impossible, because of the annoying gagging peculiar to some individuals.
Virginia Medical Semi-Monthly.

The Aqueous Treatment of Sensitive Dentin.—This consists in causing a continuous stream of water—brought to the temperature which experience has shown to give the best results—to flow into the cavity while the excavation is being performed. This causes a remarkable diminution, if not complete loss of sensitiveness in the dentin. Water at blood temperature will give better results than at 105° F., probably because the latter causes a dilatation of the capillaries.
A. E. Sykes, Pa. Den. Gazette.

Cementing Crowns and Bridges.—Having everything in perfect readiness, warm the crown and apply a thin coating of chloro-gutta-percha to the post. The chloroform evaporating leaves a film of heated gutta-percha. Adjust the crown to the root and remove immediately. This shapes the gutta-percha on the post. Allow the crown to cool and then cement to place as though no gutta-percha had been used. A crown so cemented can be removed at any time by the application of heat to the metallic portion of the crown, communicating heat to the post and softening the sheath of gutta-percha.
Geo. Evans, Ohio Dental Journal.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Bay St. Louis, Mississippi.

To Relieve Pain in a Socket after an Extraction.—A small quantity of powdered borax with very warm water is often all that is required to give relief. *C. L. Tool, Dental World.*

In Using the Mallet.—If you would have your patient thank you, use a piece of cork, trimmed square, between the teeth when inserting a gold filling. The impact of the mallet blows is less severe on a tooth thus supported by a cushion of cork.

Dental Hints.

Soap as an Antiseptic and Disinfectant.—From an extended series of experiments Symes concludes that “* * organisms which get rubbed into a soap in the process of washing hands, clothes, or other surfaces, or which may settle upon soap from the air, are not capable of multiplication thereon.” He did not find it possible to grow moulds or bacteria on the surface of soap kept under ordinary conditions.

British Med. Chir. Journal.

Porcelain-faced Crown; to Make a Perfect Joint.—After the crown is ground to proper length and approximate point, when investment is thoroughly set, carefully remove porcelain, charring away every particle that might prevent its exact return to place. Tear open a gold cylinder, No. $\frac{1}{2}$ or $\frac{3}{4}$, and place in such position about the abutment in the investment that the fibers of gold will be loosely engaged between the abutment and the porcelain when the latter is again placed in position. The pure gold fibers, if carefully adjusted, will take up the solder, and the crown will finish up without a trace of space between gold and porcelain.

A. M. Jackson, Dental World.

Tin and Gold as Filling Material.—The employment of tin and gold—one sheet of tin folded between a varying number of sheets of gold—though old, is but little used at this time. It has, however, in many cases advantages over either all gold or all tin. The compound is very malleable, and is readily adapted to the walls of a cavity. The filling when first completed is less hard than all gold, but much harder than all tin. Through electro-chemical action molecular change takes place, and after a few months the entire mass becomes harder than amalgam, over which it has the advantage that it neither shrinks nor expands. It is rapidly introduced, thereby saving time and fatigue to both patient and operator. Its therapeutic action, its great adaptability, its lack of conductivity, and the rapidity with which cavities can be filled, with no necessity for the rubber-dam, make its use especially desirable for the teeth of children up to the age of 15, for which, in the great majority of cases, gold is the least desirable filling material.

A. Hugenschmidt, Revue de Stomatologie.

Finishing Gutta-Percha Fillings.—Hot vaseline is a solvent of gutta-percha, and is useful in trimming gutta-percha fillings. Apply the vaseline and use a warmed burnisher.

L. Van Orden, Items of Interest.

Germicide; Acetic Acid.—The investigations of Drs. Abbott and McCormick, of the Johns Hopkins University, show that a solution containing 7 per cent. of acetic acid is more effective as a germicide than bichlorid of mercury.

Items of Interest.

Overcoming Nausea.—In case of nausea arising from taking impressions, placing the rubber-dam, or even pregnancy, a 2 per cent. solution of cocain, blown directly up the nostrils by means of compressed air, so as to have the fluid in contact with the olfactory nerves, will often relieve the severest case of retching.

S. Freeman, International Den. Jour.

To Restore Badly Decayed Root for Crowning.—Drill canal as for pin; trim orange wood stick to fit canal; coat the stick with thin film of wax. Having the canal dry and amalgam mixed, insert the waxed stick in the canal and pack amalgam around it, filling flush with gum margin. After amalgam has set, remove the waxed stick and proceed as required.

C. L. Tool, Dental World.

To Sharpen Files.—Wash with soap and a stiff brush, and immerse in a mixture of

Nitric acid.....	1 part.
Sulfuric acid.....	3 parts.
Water.....	1 part.

Let them remain in the fluid until well cut; then wash in lime water.

Dental Hints.

A Metallic Shell-Die for Rubber Plates.—Take two impressions. Varnish the better one and set aside to dry. In the other pour a model, to which carefully adjust Stuck's tin, 32 to 34 gauge. Do this with the fingers, using spunk in foil carriers to bring to close adaptation. Cut and lap if inclined to pucker in places. When satisfactorily fitted, transfer the tin plate to the other impression, forcing it into every depression and undercut, using spunk, ball burnisher, etc., if necessary. Remove the impression and you have an ideal model. After waxing up the teeth, and when the case is ready for the flask, place another piece of tin over the whole, burnishing close to the teeth. Vulcanize between these two metallic surfaces and you will have a dense, tough, flexible plate with rugæ plainly defined and the results such as are not attainable by any other method.

W. K. Slater, Dental Headlight.

Compressed Air in Bleaching Teeth.—In bleaching teeth I find that by the application of hot air at high pressure I am able to produce the required conditions in one-half the usual time, rapidly evaporating pyrozone 25 per cent. and forcing it into the tubuli.
S. Freeman, International Den. Jour.

Cleansing from Borax.—Borax can be removed from porcelain and gold by boiling in commercial muriatic acid, full strength. To protect the facings from borax coat, previous to investing, with a paint composed of yellow ochre four parts, boracic acid one part, mixed with boiling water.

J. L. Young, Dental Register.

What to do with Retained Deciduous Teeth.—We should, in the absence of certain knowledge, hesitate to remove retained deciduous lateral incisors, their retention often indicating that their successors are non-extant. Retention of temporary cuspids, however, often results from impaction of the permanent teeth.

R. Ottolengui, Items of Interest.

Filling Root-canals of Deciduous Teeth.—When the root canals of deciduous teeth have been filled absorption ceases. The teeth should therefore be kept non-occluded by the use of the carborundum wheel from time to time, as suggested by Dr. J. Y. Crawford. They will then be gradually extruded from the socket; otherwise abnormal eruption, or impaction, of the permanent teeth may result. *W. J. Morrison, Dental Headlight.*

Painless Pulp Removal.—Living pulp possessing all its physiological functions, and not having previously received escharotic treatment, may be painlessly removed as follows: Apply to the pulp a pellet of cotton saturated with hydrochlorate of cocain in 90 per cent. alcohol. Absorb excess of alcohol, dry with hot-air current and stop the cavity with gutta-percha, compressing the cotton upon the pulp. After ten minutes the anæsthetized pulp may be painlessly removed.

H. Rodier, La Revue de Stomatologie.

A Removable Bridge.—For those cases in which it is desirable to avoid shaping the teeth of abutment for the reception of caps, a removable single tooth bridge can be constructed by using a double loop clasp of platinum wire so shaped that one wire rests on the tooth just above the gum, the other just above the bulge of the tooth, the bridge being further supported by very small spuds resting upon the edge of the occlusal surface. A saddle of very soft platinum No. 33 is swaged to the plaster model, and stiffened by flowing gold over it. This is especially adapted for the replacement of single molars.

Howard T. Stewart, Mississippi Dental Association, 1900.

Finishing Amalgam Fillings.—After filling is trimmed to shape and contour, burnish all over with warm (not hot) burnishers. The result will be surprising to those who had not tried this method.
W. Mitchell, Dental Review.

Pulp Protection.—A paste of hydronaphthol with oxid powder and a couple of drops of oil of cloves and creosote is excellent practice to prevent consequent irritation that might otherwise follow the insertion of a filling over nearly exposed pulp.
Grafton Monroe, The Bur.

A Simple Compressed Air Apparatus.—To a small motor which runs a fan in summer, or a grinding and polishing apparatus, I connected a small bicycle pump, which pumps air into a reservoir containing ten gallons. This gives a pressure of ten pounds, which I find sufficient.

W. St. George Elliott, International Den. Jour.

Charcoal in Immediate Root-canal Filling of Abscessed Teeth.—Finding it difficult to pulverize the charcoal points after introduction into the canal I have used thoroughly pulverized charcoal mixed with creosote with great success, and have as yet to record a single failure.

J. H. Darham, Pacific Dental Gazette.

The Operating Stool.—For all operations upon the teeth, except the introduction of filling material, I use the ball and socket stool of Ransom & Randolph make. This stool yields to every movement of the body, in any direction, a feature which I find very advantageous. While filling a cavity I use an ordinary revolving desk-stool, with rim for foot support. The preparation of a cavity requires many movements and changes of position, while no great amount of force is to be used. For inserting the filling we need a firm, steady position. Hence the advantage of the different stools.

Howard T. Stewart, Mississippi Dental Association, 1900.

Tin and Gold; Coloration.—Fillings of mixed tin and gold—one of tin to six of gold—will retain permanently the color of Roman gold—a pale greenish tint—laying a sheet of tin on three of gold and covering with three more of gold; Abbey's non-cohesive No. 4 and White's tin-foil No. 4. Cut in four or five strips, and then, in suitable lengths, rolling between the fingers to form cylinders and avoiding exposure of the tin. In finishing the filling burnishers must not be used, or the color of the tin will be brought out. Simply polish with an instrument of copper or wood, with pumice powder. This must be done immediately, or the filling will become permanently dark.

A. Hugenschmidt, Revue de Stomatologie.

Miscellany.

Presbyiatrics.—This is a name proposed for a new specialty in medicine devoted to the study of the diseases and conditions affecting the aged. As we have now a special branch known as pædiatrics, there is no reason why, if the diseases of the young are specially studied, the conditions affecting old age should be overlooked.

Ice Water Without Ice.—To get ice-cold water in places where there is no ice wrap a porous jug in wet flannel; wrap it all around, leaving no place exposed to the air; place it, filled with water, in an open window exposed to all the air there is. Keep the flannel wet. In an hour the water in the jug will be as cold as if it had been iced. *Pediatrics.*

Artificial sponges are being made in Germany by Dr. Gustav Pum, of Graz. His experiments are based upon the action of zinc chlorid solution upon pure cellulose, says *The Trade Journal's Review*. The resultant product swells enormously with water, but turns to a horn-like substance on drying. In order to retain for the product the property for also absorbing water after drying, alkali-haloids are employed in treating the cellulose with the zinc chlorid. The mass after manipulation and molding is said to take the place of sponge in all its uses. It is claimed that a real rubber substitute may come from this field.

Celery as a Vehicle of Infection.—The dangers of typhoid from truck gardens, with their free use of fertilizers from all sources, has been often pointed out. A rather striking object-lesson is reported from one of the Eastern States, where an epidemic of fever occurred in one of the State institutions. It was found that the disease could apparently be traced to the use of celery grown on some sewage-fertilized grounds, the practice of banking up the stalks making these plants specially adapted to receiving and holding the germs. As soon as the use of the plant was stopped the epidemic diminished, and finally ceased altogether. These facts indicate the need of a caution in using this popular vegetable, which, with its corrugated stems, etiolated by banking up with earth often saturated with fertilizers of one kind or another, and generally eaten raw, might very possibly carry the germs of disease. The danger is not great, or we would hear more of it, but that it may exist occasionally the above case seems to prove. It is not intended here to advise against the eating of celery, but only to suggest that it be well cleansed first, and to call the attention of physicians to what may be a possible cause of some rare cases of disease of obscure etiology.

Vinegar in Syphilis.—The *Medical Sentinel* says: "When about to examine a septic case or where syphilis is suspected, wash the hands in vinegar or dilute acetic acid, and the smarting will quickly disclose any little scratches or abrasions in the skin which might become starting points of infection, to which collodion may be applied."

Prevention of Death From Chloroform.—In France, when a patient is under chloroform, on the slightest symptoms appearing of failure of the heart, they turn him nearly upside down—that is, with his head downward and his heels in the air. This, they say, always restores him; and such is their faith in the efficacy of this method that the operating tables in the Paris hospitals are made so that in an instant they can be elevated with one end in the air, so as to bring the patient into a position resembling that of standing on his head. *Exchange.*

The Chemistry of Perfumes.—An interesting branch of chemistry is that which is concerned with the manufacture of perfumes. In most cases these substances are high-boiling oils, which are complex mixtures of a number of compounds, and until quite recently they were obtained exclusively from flowers. The essential principles which give the perfumes their value belong to a class of organic compounds known as terpenes, and it is now possible to produce these essential principles instead of mere imitations. Within ten years wonderful progress has been made in experiments dealing with the terpenes by such chemists as Wallach, Baeyer, and Tieman, and it is now known that nearly every substance having the properties of a perfume has in its molecule certain atomic groups, whose presence has a marked effect upon the odor. The more important of these groups are the aldehyde, ketone, ester, ether, and alcohol groups.

Holocain.—This is a synthetic product, related to phenacetin, so that its name is merely imitative of cocain, which in many cases it may supplant. Its salt, the hydrochlorid, is soluble to about two and a half per cent. in cold water, and should be applied in a one per cent. aqueous solution. It has particular advantages for the general practitioner. In removing foreign bodies from the conjunctiva or cornea, for instance, it is better than cocain, as it acts quicker, causes little pain, does not dilate the pupil, in temporary use effects corneal epithelium less, produces no ischemia, to be followed by hyperemia. It is somewhat antiseptic (enough to keep itself, at least), and can be sterilized by boiling, with no disturbance of chemical composition. It must not be injected hypodermatically, nor be applied to other than ocular mucous membrane, as it is systematically poisonous. It must be prepared and kept in porcelain, not glass, as the alkali of the glass influences it.—*Med. News.*

Patient—Oh, doctor, I'm afraid I'm pretty well at death's door!

Doctor—Don't you worry, my dear sir; we'll pull you through.

A New Pulping Machine.—Dr. Silas C. Blaisdell, of the Eastern District Hospital, Brooklyn, performed an operation lately on eleven-year-old William Foley, and took about one and a half pounds of wood pulp from the boy's intestines. The boy had been ill for several weeks, and for a while physicians were unable to diagnose his ailment. He finally acknowledged that he had been in the habit of chewing wood and swallowing the pulp. The physicians say he will recover.

Röntgen Ray Diagnosis.—According to Dr. Lewis Jones, of St. Bartholomew's Hospital, London, who recently presented a paper on medical electricity before the Institution of Electrical Engineers of Great Britain, it is possible to diagnose pulmonary consumption and some other disease of the chest more satisfactorily, and at an earlier stage of the disease, by means of the X-rays than is possible with the stethoscope. In one case mentioned by Dr. Jones, an X-ray photograph showed clearly the presence of tubercles in the lung, where the ordinary methods of auscultation and percussion had given uncertain results.

Cause of Cancer.—Roswell Park (*Buffalo Medical Journal*, March, 1900), in discussing the cause of cancer, gives it as his personal opinion that cancer is of parasitic origin. Not one parasite, but probably many, are responsible for the various malignant growths. In their labors at the State Laboratory in Buffalo, they have received increasing confirmation of this belief. They have found in all carcinomata certain bodies resembling fat, but which are not soluble in ether or alcohol. These are the bodies described by H. G. Plimmer in the April number of the *London Practitioner*, 1899. Park says that in their recent work, in which cancer-tumors are introduced into living animals, they were able to find these bodies in large numbers in the enlarged lymph-nodes of the animals. They have been able in one case to produce a true adenocarcinoma in an animal by inoculation with fluid from the peritoneal cavity of a man suffering from colloid cancer of the omentum. In this fluid was found an organism which apparently belongs to the yeast group, but which they were unable to cultivate. The laboratory is in possession of pathogenic yeasts which various investigators have isolated from cancer, and experiments are being performed with them. These organisms are exceedingly polymorphic and difficult to deal with.

Philadelphia Medical Journal.

Medicine as a Business Proposition. By Dr. G. Frank Lydston.—This article, which is amusing and instructive, may be summed up in the opening words: So live that when thy summons comes to join the innumerable caravan which moves to that mysterious bourne peopled by doctors who have died of innutrition, thou go not like the general practitioner called at night, scourged from his office, but, sustained and soothed by the motto "Never trust," approach the grave like one who wraps his stocks and bonds about him and lies down to pleasant dreams.
New York Medical Journal.

Horseflesh as a Food.—France is not the only country where horseflesh is popular; in Denmark it is preferred by many people to beef. Hippic butchers at Copenhagen have been in existence since 1830, and in Belgium for twenty years. In Germany and Austria business is brisk in horse-meat preparations, and is becoming more so every year. England is still reluctant about accepting the new aliment and classes that kind of food alongside snails and frogs. The first hippic butchers in Paris were only established in 1866; ever since that special trade is legally carried on, and is considerably increasing, as demonstrated by municipal statistics—so much so that to-day over five thousand tons of horseflesh are consumed annually in Paris, sold by sixty licensed horse-butchers, who receive supplies from two special hippic slaughter houses, both outside the city proper. In both these abattoirs the sanitation is faultless, while the inspection of the meat itself is of the severest and most satisfactory nature, the same as for oxen, sheep and pigs.
Sanitary Record.

Liquid Albolene.—Coblentz (*The Newer Remedies*) describes liquid albolene as a colorless, tasteless and odorless fluid, considerably lighter than water, and having the additional advantages that it does not congeal nor become rancid and is not decomposed either by acids or alkalies. It has all the desirable qualities of a lubricant, and is especially esteemed as a spray in the treatment of nasal and aural affections. Besides being perfectly bland, it is an excellent solvent of nearly every medicament used in the treatment of these ailments. It forms clear solutions with stronger ether, chloroform, oil of turpentine, oleic acid, benzol, toluol, carbon bisulphid, etc. Owing to its lightness, it is easily applied to mucous cavities by means of an ordinary hand atomizer. It is also frequently employed as a lubricant to facilitate making a digital examination or passing an instrument. As a light, oily base for the application of essential oils, benzoin, camphor, hydrastis and similar remedies in the most efficient sprays, liquid albolene is ideal. Having itself no definite chemical or physiological action, it is a suitable vehicle for the most delicate and active medicaments.

THE DENTAL BRIEF.

VOL. V.

PHILADELPHIA, SEPTEMBER, 1900.

No. 9

ORIGINAL COMMUNICATIONS.

Dr. Groomell's Paris Letter en Route to the Inter- national Dental Congress.

Precisely at ten o'clock on the morning of July 26th the good ship "La Champagne" left her moorings, and passing down the river, through the bay and by Fire Island Light went out to the open sea endowed with all the confidence of the modern ocean liner. The ship was bound for Havre, but a majority of her passengers were on their way to Paris, to which point, it is said, all roads lead this summer. One of the important features in connection with the great expositions of recent years has been that of a place of meeting for scientific bodies, and I had not been long on shipboard before being impressed with the fact that the International Exposition at Paris would be no exception to the established custom. Among my fellow passengers were representatives to the International Medical Congress, the Assembly of Civil and Mechanical Engineers, the World's Meeting of Pharmacists, the Congress of Physicists, the Women's Congress, etc. This coming together of all people of all nations and of all tongues has for its purpose a common exhibit of the supreme achievements of mankind, and such an assemblage becomes, for the time being, deeply conscious of its unity.

*Some Features of a
Sea Voyage.* To many on board life on a French liner is a revelation, and to not a few it has proven a wholesome lesson in methods and politeness. With five meals a day, the stomach never lacks for that which the French claim is needful for its functional sustenance—work. Such an experience is from first to last an immense novelty; the Frenchman, in his

effort to master English, is equally amusing with the American struggling with French; the German, with a determination to accomplish both is only surpassed in his linguistic enthusiasm by the Italian who struggles with all three. Everywhere about the steamer, on deck, in the *salon* or *fumoir*, this "confusion of tongues" is the amusing feature of the voyage.

*The Ship
Physician.*

One of the most interesting individuals on board is the ship physician, *le docteur*, L. Jullian. Of French birth and education, this gentleman, by his continual association with other nationalities, has acquired a fair knowledge of many languages, and a brief interview with him proved to be of considerable interest. Naturally the first question propounded was one relative to the most frequent pathological conditions met with on board a transatlantic steamer. With a characteristic shrug of the shoulders, accompanied by many nervous gesticulations, the doctor replied: "Ah; of course, sea-sickness among the passengers, and minor surgery in case of accident to the employés; besides there is always a limited number of poor souls among the steerage from New York to Havre, who, in bygone years, with light hearts and bright prospects, have emigrated to America, and after months, or perhaps years, of struggle find their hopes blasted, their constitutions shattered, and as a final satisfaction are going home to die. Many of them require careful and constant attention, and not infrequently they succumb before reaching their destination."

"What about dentistry in France? Are all the successful dentists those who have received their dental education in America?"

"No, no, no; not at the present time; no, no. A few years ago only the American dentist was recognized; but not so now; the French dental schools have revolutionized the profession in that country, and young men are no longer compelled to have, nor does the public demand, American training."

*A Talk with
Dr. Reveire.*

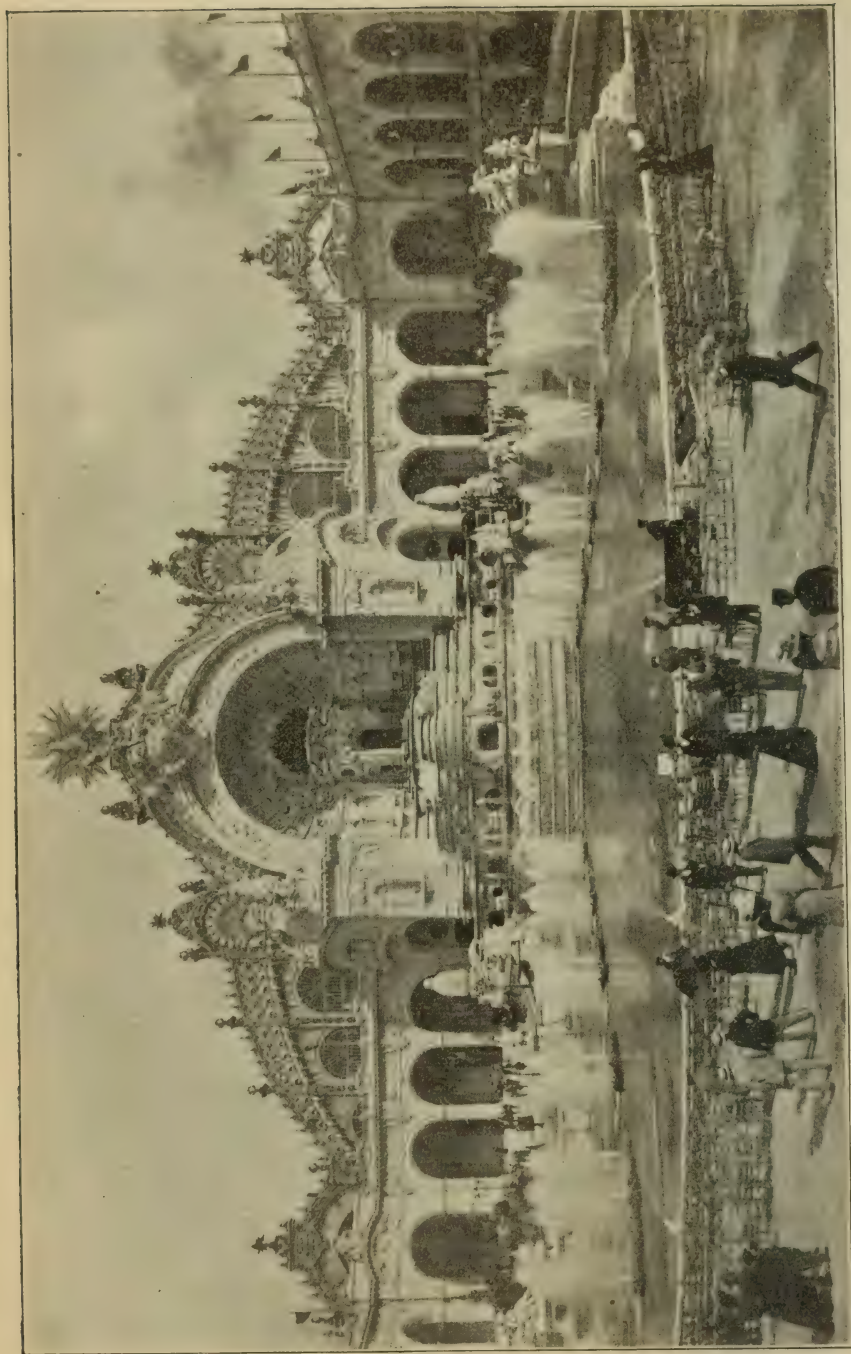
One evening, while in the *fumoir*, I became acquainted with Dr. Reveire, a celebrated French specialist, and the description and history of some of the French colleges and universities, as given by him, I will attempt to relate. As early as 1530 Francis I. founded the College de France, and this institution, while primarily designed for the

teaching of languages, has of recent years developed into a school of medicine, mathematics and the sciences generally. The College de France is practically the outgrowth from two minor institutions, the Trequier and Cumbrai Colleges, which originally occupied the present site. The college maintains about forty professional chairs, ten of which are devoted to medicine. In the medical school much account is made of the teaching of specialties, and while there is no department devoted to dentistry, this specially receives careful attention from those chairs most closely associated with it, and it is thought that in the near future a distinct dental school will be established.

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One feature of this school not common to most institutions of learning is the course of free lectures given from December to July. These lectures are open to men and women alike, and include the subjects of history, philosophy, physics, literature, etc. It was in one of the laboratories of this college that Dr Claud Bernard, the creator of modern physiology, and the founder of experimental medicine, labored for many years.

Another educational institution with an interesting history is the Sorbonne, founded in 1256 by St. Louis, receiving its name from one of its early patrons, Sorbon. This school in its early days was devoted to the study of theology, but rapidly developed into an academy of much power throughout continental



The long graceful arches in the background of this picture form the roof of the Salle des Fêtes, and afford an idea of the size of this mammoth hall.

Europe. For a period it was the recognized seat of the University of France, but recently its jurisdiction has been limited to Paris. It embraces five separate faculties, the faculty of medicine being installed in a building especially constructed and equipped. Here, too, the lectures are free and public. No special course is provided for the dental specialist, but careful and systematic preparatory training is accorded prospective students in dentistry.

Dr. Reveire was questioned regarding the past and present of the American dentist in France, and his reply was directly adverse to that given by Dr. Jullian. "The legitimate American dentist has for many years occupied the foremost place in his profession in the French Republic, and especially in the city of Paris, and at the present time the same distinction is accorded him."

"How do you account for such a condition, doctor?"

"The average French dentist pollutes his profession by his niggardly fee system, in most instances being fifty per cent. less than his American brother."

"How are the deserving poor provided for?"

"Very many dentists have free consultations for indigent persons, and in this respect the French dentist is deserving of much praise."

Among the gentlemen on board *en route* to the Medical Congress the physician of general practice was not to be found, but the rhinologist, gynecologist, ophthalmologist, etc., each in his own way representing the ever-increasing disposition to specialize, were strongly in evidence. In conversation with one of these medical specialists the question was asked if, in his opinion, the time would ever come in which the practice of medicine would be entirely in the hands of specialists? He replied: "No; such a change is an impossibility." "Why is it an impossibility?" "Because the smaller cities and towns throughout the country cannot support such specialists." "Will it ever take place in the large cities?" "Yes, it undoubtedly will to a very great extent; but even here the general practitioner will always be found. In recent years the tendency has been in polyclinic courses to impart to the general practitioner a fair, and in many instances a complete knowledge of special practice." How can you account for the



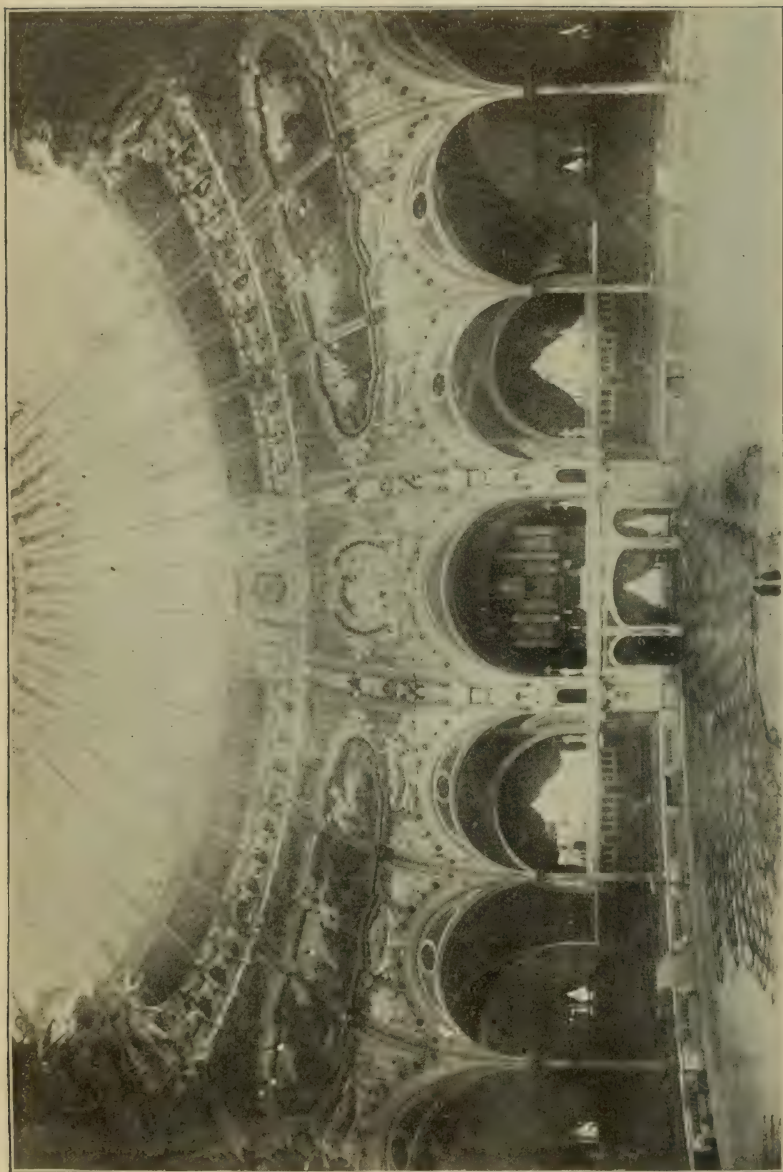
Arrival at Havre.

birth of a new specialty?" "Undoubtedly the development of asepsis and antisepsis and a better understanding of pathology are responsible for any specialty, new or old. One specialty brings on another; thus, when surgery married obstetrics, gynecology was born. Of course there are some specialties which have developed regardless of aseptic methods. Take the specialty of ophthalmology; this has been the outcome of an advanced knowledge of the pathological anatomy of the eye, together with the mechanical methods of treatment, of refraction, etc. The specialty of internal medicine is the result of new clinical methods, a clearer reading of symptoms and a consequent advance in diagnosis." "You have spoken of the various medical specialties; why do you not refer to, or include, dentistry or the stomatologist?" "Dentistry is best compared with ophthalmology, and neither should be recognized as a specialty of medicine, because they do not involve the saving of human life." "I am afraid you do not appreciate the full scope of the dental practitioner of the present age." "Oh, yes, I do, fully; but just as soon as any pathological condition in the teeth or within the mouth becomes of serious importance, or sufficiently so to endanger life, the case should at once be transferred to the physician." "Don't you think it possible for the dental man to sufficiently acquaint himself with all the complications that might arise from some aggravated dental or oral lesion, to permit him to successfully combat with the same?" "Well, perhaps so; but the average dentist of to-day is not sufficiently informed to attempt to care for the class of cases referred to, and I repeat, they should be given over to the physician."

The foregoing conversation is given for what it is worth, but the views expressed are such that their acceptance becomes an impossibility.

I had hoped that a number of gentlemen prominent in the dental profession would be passengers on "La Champagne," but in this respect the voyage was disappointing.

After seven days and eighteen hours
Arrival at Havre. of unusually rough weather, a turbulent sea and disturbed equilibrium, the picturesque harbor of Havre was sighted, and at 2.45 in the afternoon of Friday August 3d, we gladly bade *adieu* to our faithful trans-



Interior of the Salle des Fêtes, in which it was originally intended to hold the various congresses.

port, and boarding a special train in waiting, were off for Paris. By this very acceptable arrangement little or no opportunity was afforded to visit the old city of Havre, with its dingy stone buildings, crumbling party walls and quaint customs, all of which combine to attract the American traveler, and to make him appreciate the fact that he is a stranger in a strange land. Paris is a good four hours' run from Havre (the same distance could be covered in America in three), but even this prolonged time was not enough to fully enjoy the beauties of Normandie, with its villas and graceful villages scattered here and there, its ideal highways and well cared-for woods, lending an animated and smiling aspect only too welcome to the eyes now somewhat dull from the monotony of a sea voyage.

Paris and the
Exposition.

Paris was reached at a late hour, and after a night's rest a hurried visit is made to the Exposition. It is not my purpose, nor is it my mission, to attempt to describe this wonder of the new century; there are, however, a few striking features to which reference may be made. The Exposition is French only in so far as its location and the mass of its attendants are concerned. To the American it might be accepted as *his* show in Paris, while the Englishman could justly prove the same claim. Everywhere among the visitors the English-speaking people predominate, and they appear to exert a ruling influence over the manners and customs of the patrons of the Exposition.

This wonderful city within a wonderful city, stretching out along both banks of the river Seine, with its varied architecture, its myriads of lights and its indescribable exhibits, affords the visitor a confusing and gorgeous panorama, proving to a few instructive, but to the masses affording a dazzling sensation of amusement, a never-ending and delightfully innocent sense of intoxication.

Once within the massive white structure on the west side of the Champs de Mars, the sections devoted to medicine and to surgical appliances were sought out, and a hasty examination of those pertaining to dentistry proved of sufficient interest to warrant a description at a future time. The department of "Higher Technical and Professional Education" was visited, and a note made of the fact that dentistry, of all the professions, made the poorest showing, a subject that will also receive full consideration in a comparative way at another time. Before leaving the

Exposition grounds to attend a session of the Medical Congress I determined to ascertain, if possible, the location and character of the building in which it was originally intended to have the various congresses assemble. From good authority it was learned that the Salle des Fêtes, a permanent memorial structure, was primarily designed to serve this purpose. In this immense hall, an exterior and interior view of which accompanies this paper, at least four separate congresses could meet at one time, the immense floor space serving to sufficiently individualize the various assemblies, and the lofty dome affording both freedom and protection of speech. For some unknown reason the Exposition management decided that the various international gatherings should be held elsewhere, and as a result the Dental Congress will convene in one of the dental schools of Paris.

**The Medical
Congress.**

The International Medical Congress, the sessions of which are being held in the Rue de l'Ecole de Medicine, has proven to be a decided success, both as to attendance

and the character of the papers and discussions. The number of delegates present is said to be considerably greater than at the World's Congress, held in Chicago in 1893, and the representation is more evenly proportioned between the various countries and nationalities. The large cities of America are well represented, and from what can be ascertained these delegates appear to have a dominating influence over the deliberations. The section of stomatology was fairly well patronized, but appeared to lack enthusiasm.

**The Value of
an Interpreter
in Paris.**

In the evening of my second day in Paris I went by appointment to the Hotel Grand on the Boulevard Capucines, a public meeting place much frequented by American and other tourists. Soon after

being seated in the sidewalk café I was approached by a very clever guide and interpreter, who politely tendered his services. The evening's program being already arranged, I was compelled to decline. An exchange of names disclosed to him my identity, and forthwith came the information that there were other gentlemen nearby whom I should meet. These proved to be two German dentists, who had arrived in Paris but a few hours before to attend the congress. Instantly the cunning of the guide to interpret was revealed; he had succeeded in

bringing about a very clever business transaction. Here were three souls with probably but a single thought for the time being, and no method of expressing the same save through the medium of him who had brought us together. "Five francs and fifty centimes an hour," said the artful guide and interpreter. "Ein Frank fünfzig für die Stunde," was repeated to the German representatives of the little party. After a few moments of thoughtful consideration our common position was simultaneously recognized as somewhat embarrassing; a hasty collection was taken up, and the work of communication begun.

"They say they are very fond of the American dentist," said the guide; "the American dentist is the best all over the world," he continued. "They want to know if you are acquainted with Dr. Miller, of Berlin." In reply I said, "Yes; we were classmates some twenty years ago, but I have not had the pleasure of meeting him since that time, a privilege which I hope to enjoy while in Paris." To this I added, "that everybody knows Dr. Miller, the man justly famed for his admirable work on bacteria of the mouth." This latter remark appeared to please my newly-made friends, but after a very few minutes the conversation slowed down, the guide became restless, and presently bade us good night, and my German friends quietly sauntered down the Avenue de l'Opera.

MAKING GOLD FILLINGS OUT OF THE MOUTH BY
THE IMPRESSION AND MATRIX SYSTEM.*

By R. M. Chase, M.D., D.D.S., Bethel, Vermont.

The making of gold fillings out of the mouth would at first thought, perhaps, seem a little strange, yet in this case, as in all others, a title has no significance unless possessing merit and capable of doing some good. My excuse for being somewhat enthusiastic in this line of work is perhaps justified by the results obtained thus far in my own practice. I do not stand here in the presence of so many fine operators with a view of changing the good work you are doing at your chairs daily. I simply offer this method as accessory.

Any means whereby the burden of tooth-filling can be lessened to both the patient and the operator without losing the artistic effect and permanency of the operation seems to me both justifiable and commendable. In the special field for which this work is designated it has given pleasurable satisfaction; pleasurable because of the less tedious waste of time and vitality of both patient and operator, overcoming many annoying perplexities incident to the filling of inaccessible and large cavities. The preparation of cavities for porcelain inlays has been so well and thoroughly given in the recent dental journals that a repetition would seem unnecessary, as the details given apply equally well to gold inlays as far as preparing the cavity is concerned, remembering, of course, that gold has a wider field, and can be utilized to a greater extent, restoring fully broken and decayed molars to usefulness where porcelain would be impracticable.

When there are large undercuts, as is often the case in the crown of molars, cut away all thin edges of enamel, and excavate thoroughly. If the cavity is deep, cover the floor or bottom of the cavity and all undercuts with some good non-irritating cement, varnish the same with sandarac, and in a short time the cement will be hard enough to trim, leaving the side at right angles to the floor of the cavity. This applies to the shaping of crown cavities where decay has progressed rapidly into the dentine, and you wish to save as much as possible of the occluding surface. The labial cavities of the anterior teeth and the buccal

* Read at the twenty-fourth annual meeting of the Vermont State Dental Society, March 22d, 1900.

cavities of the bicuspid and molars will not as a rule require any preparation with cement, as the shape of these is usually larger at the orifice.

Proximal cavities of incisors and cuspids should be cut away and properly shaped from the palatal and lingual sides. Proximal cavities of the bicuspid and molars should be so formed that they will present a pyramidal shape with the base of the pyramid at the occluding surface. The object of this shaping of the cavities is to facilitate the withdrawal of the impressions.

The impression compound which I shall show you is the result of a long series of experiments in this line of work, and I present it to you with the full confidence that it fills a long-felt want not only for the making of matrices for gold and porcelain inlay work, but for reproducing the exact shape of the crowns and roots of teeth for crown- and bridge-work. When ready to take the impression, carefully dry and protect the cavity from moisture, and with a small piece of the compound between the thumb and index finger force the material into the cavity, using enough force to make sure that the compound occupies every part of the cavity. Gently withdraw the compound, and examine to see if you have a perfect impression of the shape, angles, sides and edges of the cavity. When you can use an impression cup it is advisable to do so. If there is any tendency of the compound to adhere to any part of the cavity, a little lycopodium sprinkled upon the surface of the compound will obviate any trouble in that line. Around the impression place a small band of very thin German silver, copper or platinoid. This band should be at least an eighth of an inch larger than the cavity impression and about one-half inch high. Be careful when placing this band that you do not disturb the impression. The edge of the band should be pushed into the compound, so that there will be no chance for the alloy to flow underneath. The impression is now ready, and a matrix can be made with fusible alloy. To obtain a fusible alloy suitable to make a perfect matrix has been a source of quite a little trouble and expense. Most of those in the market are wholly unfit for the work. I have experimented until I am happy to say that I have succeeded in making one that possesses the essential qualities, viz.: one that melts at a low temperature and yet is hard enough to make a sharp and perfect reproduction of the impression, is non-shrinkable, and does not deteriorate by remelting.

As soon as the alloy is poured into the band onto the impression, tap the impression cup gently on the table, or when the cup has not been used, the compound should be held in a napkin or tissue paper, as in the act of taking the impression between the thumb and finger, the napkin will prevent burning the fingers should any melted alloy escape. The tapping can be done the same with the hand until the alloy begins to set. This will insure a sharp reproduction of the edges of the cavity, and a little practice will enable you to do it easily.

After you have produced a matrix imbed this in a little plaster of Paris, either on the bench or on something that will make a firm foundation, or fasten in the bench vise and proceed to fill with gold, or dismiss your patient and make the filling at your leisure; gold foil pellets, ropes or fibre gold can be used for making inlays, holding it with an instrument until you get it well anchored, or if the shape of the cavity is such that it may start, one or two retaining pits can be made at the bottom of the cavity, burnish thoroughly and partly finish the filling in the matrix.

To remove the filling hold the matrix over a spirit lamp and as soon as the alloy melts a little from the edge of the inlay give the matrix a quick jerk and the filling will come out clean, and a perfect inlay to the tooth cavity.

In building up a bicuspid or molar tooth, after the cavity is prepared, mould a little wax into the cavity, and ask your patient to close the mouth. This will give the articulation of the opposite tooth; this placed into the matrix and arranged on an articulator will enable you to complete the occluding surface without any subsequent grinding; when placed in the tooth cavity, make slight undercuts with a wheel burr at the sides, also some little depressions in the base of the inlay. Use any good cement, mixed to a creamy consistency.

Before the final adjustment of the inlay try it in the cavity and see if it fits perfectly at the edges; if it does not, a perfect fit can be secured by holding the filling with an instrument and burnishing it to the edge of the cavity.

Fill the cavity with the cement, and force the inlay into place, holding it firmly for a few moments, and then coat the edges with sandarac varnish. After a short time it can be finished up or left for a subsequent sitting.

It may seem to you from the description of this operation

that it must take a long time to make these fillings. I can only say that you may be surprised, after becoming familiar with it, how quickly you can make them.

I wish to say before closing that you will find the impression and matrix system equally as good for porcelain inlays, and you will get positive results by burnishing the foil into the matrix, and if from any cause you do not get a perfect inlay the first time you can duplicate it without access to your patient.

This, gentlemen, in brief, is the way I make inlays. The method is easy, practical and artistic. I hope that you will take as much pleasure in doing this work as I have in imparting the results of my labor.

ABSTRACTS AND SELECTIONS.

TECHNICAL VS. THEORETIC TRAINING.*

John S. Marshall, M.D., Chicago.

The subject which has been assigned to me seems to contain some very interesting and serious questions which lie at the very foundation of the present system of training in our American dental colleges.

This is a practical age and Americans are a practical people. Our public educational systems are all planned on the basis of practicality. To our people an education which does not fit the young man or the young woman for the practical, every-day affairs of life is looked on as being of little value. The great aim in life of the average American citizen is money-getting, and therefore the education which does not fit him to obtain the object of his ambition is in large measure valueless to him.

This desire for money-getting permeates the professions to such an extent that the young men who seek to enter their ranks are ambitious to reach the goal by the shortest possible road, and by the least expenditure of money that will fit them to begin the earning of a livelihood, rather than to prepare themselves in every possible way and in the most thorough manner for the duties and responsibilities of their high calling, regardless of the time and money spent in the preparation.

This desire to enter the professions with the minimum of preparation that will enable one to compass a living does not have a tendency to raise professional standards either in culture, scientific attainments, or ethics. In fact, the whole tendency is degrading and can work only ill to the honor of the profession, to the individuals who thus prepare themselves for the duties of professional life, and to the innocent public on whom they practice.

This commercial spirit in the professions has made it possible for any small coterie of men, imbued with the money-making and advertising spirit, to establish a college for the avowed purpose of educating young men and women for a professional career—especially in medicine and dentistry—but in reality for the covert purpose of gratifying their ambition for money-making and to see their names in the public prints, and this many times with no regard to an honest return to the student in the way of sound professional teaching for the money paid into the treasury of the institution.

* Presented in a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

Even the best of the professional colleges are not entirely free from this commercial spirit, and they vie with each other in their ambition to increase their student body beyond that of their neighbor, employing means sometimes which are not entirely above reproach. On the other hand, many of the better class of dental colleges have been striving to deal honestly with their students, and to give them the best professional training that the time and the money invested would permit. To this end they have arranged their courses of instruction with the view of giving their students a good technical training in all that pertains to the purely mechanical and operative departments. But, in striving to attain the highest development of the student in these directions, the equally important work relating to the fundamental medical sciences, which are the basis of our knowledge of health and disease, and which govern the treatment of disease in all its forms, has not been studied with the same degree of energy, nor has it been given the prominence in the curriculum which its importance deserves. As a result of this, the dentist who is graduated from our colleges to-day is a first-class jeweler, capable of making the most beautiful pieces of crown, bridge or plate-work, and inserting the most brilliantly finished gold fillings, after the latest and most approved methods of cavity preparation, anchorage, condensation and polishing. But what is all this worth to the patient if, through ignorance of the laws which govern the resistance of tissues to irritation, or of the principles of antiseptics, a pulpitis follow the insertion of such a filling, or because of improper treatment of a septic root-canal, the crown or bridge is lost by reason of the development of alveolar abscesses which might have been avoided by a proper knowledge of the principles of antiseptics and of surgery?

What can be said of a system of teaching which fails to prepare the graduate of dental surgery to distinguish the differences between a case of aphtha—common canker-sore mouth—and a syphilitic mucous patch? How many really know the differential diagnosis between these diseases? Syphilis is so common in these days that the dentist needs to be well grounded in the clinical aspects of the disease in order to guard his patients and himself from inoculation.

Again, if the dentist has not a good knowledge of the anatomy, physiology and pathology of the nervous system how can he diagnose a case of reflex neuralgia of the fifth nerve from a case of hyperemia of the pulp in a tooth which gives no external evidence of injury or disease of the crown? It is not sufficient that he have a good knowledge of the anatomy of the teeth, and of the bones, muscles, blood-vessels, nerves and glands of the mouth and jaws. He must have a wider range of knowledge than this implies, or else he will never occupy that exalted plane of professional equality with the members of the medical profession which it is his right and duty to do.

Dentists sometimes complain that their medical brethren do not always treat them with that degree of respect which is due to them as professional equals; that they are not consulted as to the best method of treatment to be pursued in a given case of dental or oral disease; and that the physician presumes to dictate as to what shall or shall not be done rather than to advise with the dentist as he would with the oculist, the laryngologist or any other specialist, in a case that came under their especial departments.

When much lack of courtesy occurs on the part of the physician, it may usually be set down either to prejudice and narrow-mindedness or to some unfortunate experience, for it cannot be said that dentists have never given their medical brethren cause to doubt their ability to render an intelligent diagnosis in certain oral diseases, or to treat such cases after the most scientific methods.

Thirty years ago a large majority of the rank and file of the dental profession were without college training, and consequently held no professional degree, while many of them were positively ignorant of all that pertained to the art of dental surgery save the extraction of teeth, the making of a rubber plate and plugging a tooth with amalgam or gold. Under such circumstances it was no wonder that medical men of education did not feel justified in calling such dentists in consultation over serious cases. The educated dentist, however, has never had cause to complain of his treatment by the cultured medical man, for no class of men are more anxious to divide the responsibility of a case calling for special knowledge than is the educated, cultured physician. No man more fully realizes than he that the field of medicine has become so large that it is impossible for even the most brilliant mind to acquire all the knowledge comprised in the various branches of medicine and surgery, or even to completely assimilate all that belongs to a single department, and therefore he is glad of the opportunity for the good of his patient and the relief of his own mind, to call in consultation a man more eminent than himself in that particular department by reason of his superior knowledge and skill.

Technique or technical training, as it is generally understood to-day, was not a realized fact ten years ago. At that time the system was still in the embryo stage. The idea was in the minds of a few progressive men who realized the great need of more careful training in the manipulative departments of dental surgery. Little by little a system has been evolved which covers the entire field of mechanical and operative dentistry, so that to-day in our best institutions it would be difficult to plan a more thorough course of instruction in these departments.

The difficulty, however, lies in the fact that so much time is being spent in the manipulative training of the student that his scientific education is being neglected, and instead of mak-

ing scientific practitioners out of our students, we are training them largely as mechanics and artisans. Do not misunderstand me on this latter point, for I would not have his technical training made any less thorough or complete than it is to-day, for manipulative skill of the very highest order is required in the first-class dental surgeon. But he needs much more than this if he is to intelligently meet the grave responsibilities of his calling. The health of his patient, and often life and death, wait on his decision in the treatment of many forms of dental and oral diseases. Is it not therefore of vital importance that he should be well grounded in all of those scientific departments of study which are the foundation of a broad medical education—anatomy, physiology, histology, pathology, chemistry, materia medica, therapeutics and surgery? How can he recognize morbid conditions if he knows little or nothing of the normal appearance of tissues or of the physiologic functions of the various organs, parts and systems of the body, and their interdependence on each other? How can he hope to successfully treat even the ordinary forms of disease which belong to his specialty if he is deficient in the knowledge of general and surgical pathology, or of the administration of remedies and their therapeutic effects?

What the profession needs to-day is not less technique, but a more thorough training in those sciences which make the intelligent physician and surgeon.

The question which very naturally arises in the consideration of this subject—provided that you agree with me that this training in the general medical sciences is necessary—is how may this scientific education be obtained?

I would suggest: 1. So elevate the entrance requirements that only the most intelligent and studious can hope to gain admission to the dental colleges. 2. Lengthen the college course to four years of nine months each. This would give ample time for the most thorough training. 3. Place the dental students in the same classes with the medical students for the first two years of the course of study, and require them to take the same work and pass the same examinations; and during the last two years devote all the time to those subjects which pertain to dental surgery. 4. Graduate no student who has not fulfilled all of the requirements of the course.

But then, the commercial spirit again comes to the front, and contends that such a movement would ruin our schools. If such schools were organized for the purpose of *just making money*, then the sooner they disappear the better. There are already too many schools in existence and only the better ones should live.

If dental surgery is a department of medicine, then let it place itself on the same plane with the other learned professions. But it can do so only by adopting the same high standards of culture, professional attainments and ethics.

SOME THOUGHTS ON TEACHING MATERIA MEDICA AND THERAPEUTICS, EMPHASIZING OBJECT TEACHING.*

A. H. Peck, M.D., D.D.S., Chicago.

This subject is, I presume, rated by the majority of teachers in dentistry, and certainly by the vast majority of students of dentistry, as the driest and most uninteresting of the entire college curriculum. Why this is so, I cannot tell. I can only leave those who are especially interested in this particular work to draw the inference. As for me, I would not exchange my position as teacher of materia medica and therapeutics for that of any other in the list of instructors. This work is anything but dry and uninteresting, as I find it. I see in this field such opportunities for original research, for broadening of one's mind, for extension of one's knowledge, for general rounding of one's mental capabilities and character—teacher or student—as are found in very few, if any, of the other departments of college work. Surely, the individual who is unable, in the light of such possibilities, to present his work to the students in such a way as to command at the very outset, and to hold throughout, their respect and interest, is certainly not the kind of individual referred to by the gentleman who said, "Poets are born, not made;" for this saying applies just as truthfully to the teacher as it does to the poet.

One of the first and most important questions to be considered in a paper of this character is: Just how far should we, as teachers of dental students, carry our pupils in this great field? Are we justified in being content to teach them just enough to enable them to treat locally, reasonably well and with a respectable degree of success, the various pathologic conditions about the mouth? Or should it be our aim to so instruct them that they will at once be able to recognize and intelligently prescribe for the various systemic disorders that are constantly aggravating the local pathologic manifestations, many of which are only indexes of the systemic disorders. My answer is most emphatically in favor of the latter course. Please do not understand from this declaration that I would have the dental student subjected to as thorough and complete a course in materia medica as is required of the medical student. However, I am strongly inclined to the belief that this phase of the question should be qualified only by the unfortunate condition invariably imposed upon us, namely, lack of time. Surely,

* Presented in a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

no one will deny that three years, of six, seven or even eight months each, is insufficient time for the students to become thoroughly learned in all the branches now included in our curriculum; consequently the work in some of the departments must be cut down as much as possible, and perhaps, chief among these is *materia medica* and therapeutics.

Nothing grieves me more than to hear, as we frequently do, from the older members of the profession, the leaders, those to whom we are accustomed to look for guidance and inspiration, this sentiment, that it is a mere waste of time to teach the dental students more *materia medica* than is necessary to enable him to treat, reasonably well, the local manifestations of trouble about the mouth.

What would you think of a man enjoying a lucrative practice in a large city like Chicago, or elsewhere for that matter, merely treating with local remedies the local manifestations in the mouth in a case of syphilis, and never even thinking that this disease calls for systemic treatment, to say nothing about possessing the knowledge to prescribe for it? Such a case, under these conditions, was referred to me only a short time ago.

The very logic of medicine lies in one's ability to recognize the primary action of drugs on the various organs, and, through the great systems of the body, the secondary action on other organs, in this manner having an indirect but important bearing on the local pathologic manifestations. Thus one is enabled to note the parallelisms existing between the action of drugs and the pathologic conditions in disease—a very fascinating study indeed.

Let it be understood, then, that we favor the following as the order of their importance: 1. The therapeutics of these drugs with which the student will come in contact daily in his practice, such as the antiseptics, disinfectants, germicides, escharotics, counterirritants, and styptics. 2. A thorough knowledge of at least the standard remedies that may be indicated for the alleviation of all the systemic disorders that may in any way aggravate or affect the local diseases under treatment. 3. A thorough knowledge of the circulatory stimulants and depressants; the respiratory stimulants and depressants; the nerve stimulants and depressants; the hemostatics, diluents and antiphlogistics. 4. A knowledge of the most important of those agents which in any way assist the digestive, assimilative and eliminative organs—the last comprising the sudorifics, diuretics, and cathartics. Local and systemic antidotal treatment is of the utmost importance. The intelligent prescribing of these medicines must never be neglected.

Two important questions now present themselves: How much regarding these various agents shall we teach, and how best may we teach it? In answer to the first question, I would say that we cannot teach too much about them. Our students

should be well grounded in the pharmacology, source, constituents, physical characteristics and properties and physiologic action—in its broadest application—their dosage and indications and most of all, their therapeutic value, of the various agents. An individual consideration of these agents or groups of agents, however desirable, is out of the question in the time allotted to this paper.

In answer to the second question: How best may we teach this? I will reply that no one rule or set of rules can be followed successfully by all. As indicated above, teachers, as well as poets, are born, not made, and each one will find it necessary to follow the guidance of his own personal capabilities and characteristics. In my individual work I find the recitation plan of inestimable value, the source of the drugs, their physical characteristics and properties, their chemistry and dosage being taught almost exclusively after this plan. The physiologic and therapeutic action of the agents is taught by lectures and by demonstration. However, oftentimes I find the recitation method peculiarly adapted to this division of the work. We should strive to make our teaching in these two phases of our work just as interesting to our students and as thorough as possible. It is of the utmost importance that we be able to select the proper drug for a certain form of disease. Blundering in this respect is inexcusable, and often results in the most serious consequences. To understand clearly just how far these agents are affecting the various organs through which they are passing on their disease-healing mission, is most important and necessary to an intelligent use of them.

Soon after assuming the duties of this chair in college work, I became especially impressed with the many shortcomings of our various text-books. Indeed, any one who has taken the trouble to look into this question will agree with me, that one has only to consult another author than the one that does not suit him, to find teaching to suit his own particular fancy; so at variance are the statements of the many different authors pertaining to these various questions in materia medica and therapeutics.

Their lack of harmony as to the relative potency of the various antiseptics and germicides and their almost total lack of consideration as to what special agent, under certain conditions of irritation, inflammation, sepsis, or otherwise, would be most desirable especially impressed me. I consider it of the utmost importance that our students, and we practitioners, shall be possessed of knowledge that is accurate, regarding especially the essential oils and other agents we are daily using. We should know their relative value or potency as antiseptics, disinfectants and germicides. When we select an agent to place, perchance, in the root-canal of a tooth, it is important that we be familiar with its relative ability to perform that work. Not only this,

but I also consider it equally important that we should know the action of these drugs on the soft tissue with which they come in contact. The antiseptics and germicides are poisonous to the vegetable cell. They are used in our work to inhibit the development and to destroy the germs of disease. Many of them are, as well, poisonous to the animal cell. No one will question the great value of being able to select an agent for a certain case that will destroy the germs present—render the parts antiseptic—and, at the same time, will remain harmless in contact with the soft tissue. Frequently it is desirable that an antiseptic or a germicide be used that is also stimulating to the diseased tissues, causing them to yield more readily to the healing influence of the drug. Again, it may be desirable to use one of these agents that imparts a depressing effect upon the soft parts. How are we to make these selections with judgment and certainty without an accurate knowledge of their action when confined in contact with soft tissue?

That I could have something definite to work upon; that I could feel when I went before my class and made certain statements in this connection that I would verify those statements by actual demonstration, I have adopted the following plan of teaching these phases of the subject: During each term a thorough and complete series of tests is made in the bacteriologic laboratory and before the class, to determine the exact relative value of these agents as antiseptics and germicides. Also an exhaustive series of experiments has been conducted on soft tissue, animal and human, in both a pathologic and normal state, to determine which are irritating, stimulating or depressing, that we may make our selections for special use with wisdom and certainty.

I believe the same individual who teaches therapeutics should teach special pathology. The two fields are so closely correlated it is impossible for a teacher to give a comprehensive course of instruction in the one without trespassing more or less on the other. Since special pathology has been assigned me in connection with therapeutics I find I am able to present the work in a much more interesting manner than I otherwise could do. The students unquestionably gain a clearer and more satisfactory understanding of the various diseased conditions, their pathology and therapeutics, than was formerly possible.

Throughout this brief paper I have hinted at the value of object teaching; I wish now to emphasize this method as strongly as may be. No one can deny that more thorough and satisfactory work can be done by object teaching and actual demonstration, where the nature of the work admits it, than is possible through the medium of lectures. Suppose it is our purpose to teach the class the effect of a certain drug on the various organisms, and for the purposes of illustration we select a cardiac and respiratory stimulant. We go before the class and in

language that is simple, plain and cannot be misunderstood tell the manner in which the drug affects the circulatory system and the organs of respiration; that it acts directly on the nerve-centers in the medulla and, through the medium of the vaso-motor system of nerves, stimulates the muscles of the heart to greater activity, thus increasing the force and frequency of the pulse; and that it acts, through the medium of the circulation of the blood, on the respiratory organs, stimulating them to greater activity, thus deepening and lengthening the inhalations. Again, a suitable animal is provided, placed upon the table in an appropriate manner, is anæsthetized that it shall not suffer pain, then with the knife and proper apparatus these internal organs under consideration are exposed to view; the students see them in operation performing their natural functions. Now the stimulating agents are administered and the students see their effect upon these organs. In turn they are taken to the laboratory and required to make the demonstration themselves. Do I hear any one ask which method of teaching will make the profounder impression on the students' minds? Personally, I can see no comparison. The simple pleasing word-picture as presented by the "successful" lecturer makes but a passing impression on the mind of the average student. This cannot be called knowledge, only transient information. The actual demonstration which he has made and observed makes a deep and lasting impression on his mind and imparts to him knowledge that is permanent.

We do not think of instructing students in anatomy by only lecturing to them on the subject. The institution of learning that to-day would advocate this would be laughed to scorn. No, we take the students to the dissecting-room and there teach the subject by actual demonstration. What would the teaching of chemistry amount to without the laboratory? And the same question may be asked in regard to the teaching of metallurgy. It is unnecessary for me to follow this line of illustration farther.

It seems to me that object teaching in all branches and departments of our college curriculum which admit of it is the only true effective method to be employed. We must work in this manner of teaching more and more if we desire to make the best return for the favor and patronage of our students. I confidently hope and expect in the near future to see a general move along this line in college work.

LIMITATIONS IN DENTAL EDUCATION.*

By Eugene S. Talbot, M.D., D.D.S.

In dealing with limitations in dental education, we are brought face to face with their greatest evil—divorcement of dental from medical teaching. Removal of a special department from general medicine and tuition along narrow lines have so narrowed teaching that even diseases of the general system which affect the mouth, jaws and teeth are excluded. The medical profession has been content to let the dentist entirely alone. In studying systemic diseases, therefore, it has not trespassed on the field of dentistry. The result is that study of the general diseases which affect the mouth, jaws and teeth have been neglected. Limitations of a dental education have prevented the dentist from associating local diseases with systemic causes.

The very title, "Doctor of Dental Surgery," has so closely and exclusively limited the profession, as it is called, that the dentist is known by the laity as doctor of the teeth. A letter received by me March 24th, asking me to deliver an address before a State Society in a city of 50,000, says: "The people here don't seem to realize that a dentist is anything more than a man with a pair of forceps who can yank out a tooth for a quarter.

The mental atmosphere of the colleges is such that the student very soon imbibes the fixed idea that repair of decayed or dead teeth and restoration of lost ones is all that is expected of him when he leaves college. Anatomy, physiology, chemistry and pathology are so taught as to impress the student with the notion that these subjects have little to do with dentistry, and hence a feeling results that to obtain the degree of D.D.S., the student need have but the dimmest idea of these sciences. The result is that the graduate of dental surgery is not competent to associate systemic diseases with their effects on the teeth, nor is he capable of appreciating systemic lesions due to overtreatment of pathologic conditions of the teeth.

The jaws and teeth, as part of the human body, are influenced by the local and systemic conditions of the human organism. Narrowing our specialty to the treatment of the human tooth, and ignoring the influences of the systemic diseases of the body and the local diseases which surround the jaws and teeth, has resulted in great mental limitations to the dentist. Only a medical education can remove these mental limitations. Dentists virtually come to a standstill as far as restoration to health is concerned; nay, more, owing to ignorance, not being satisfied with assisting Nature to restore diseased teeth to health, they

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are in many ways encouraging disease and destruction of the very tissues which they, as specialists, are supposed to protect.

Embryonic evolution teaches that the jaws and teeth are transitory structures, degenerating from year to year. They were foreordained to destruction from the very beginning. The teeth, unlike other structures of the body, obtain their size and growth before they erupt. Therefore nourishment and repair are out of the question. If decay of the teeth—which is a natural process—will not remove them, a simple process, interstitial gingivitis, and finally a still simpler process, osteomalacia or senile absorption, will accomplish the result. In the lower vertebrates, such as the whale, shark, snake, etc., continuous succession of teeth is produced throughout life. Osteomalacia or senile absorption, therefore, is the outcome of the law of atavism. Nature is trying to remove the second set. The changes in the shapes of the alveolar processes tend to lessen the blood-supply of the teeth. A society fad—etiquette in mastication—whereby the lips are closed and the motion of the jaws is barely perceptible in chewing is not conducive to strength and vitality, but atrophy or arrest of development is sure to follow. Is there not a limit to certain operations that are so enthusiastically advocated by dentists? In early races, as indicated by their skulls, and in modern nearly pure races, decay of the teeth, when observed, always commences in the fissures of the crown and at the necks of the teeth below the enamel. These are the defective places in otherwise strong, healthy teeth. In the teeth of to-day, owing to degeneration in shape, size and structure, and owing to modern methods of life, decay takes place at any locality, owing to imperfectly developed tooth structure. Decay is more frequently and more rapid to-day than formerly, and is increasing with great rapidity. It is more rapid in some nationalities than in others.

One is almost impressed by the rapidity of decay of the teeth when comparing those in ancient and modern skulls, of nearly pure races, with the teeth of the present generation. With the concentration of all the knowledge, energy and skill that has accumulated in the dental profession, the result of its narrow teaching in the past sixty years, dentists have not been able to prevent the ravages of decay. Nor will they be if they practice present methods for a millenium.

Fillings are inserted no better by dentists to-day than they were forty or fifty years ago. All that any one can or ever will be able to do is to insert a moisture-tight filling, excepting, of course, amalgam. A patient comes; cavities in the teeth are filled; the patient is dismissed with a request to return in six months or a year; he returns, as requested, with more cavities and decay around those recently filled, but the dentist is not disappointed.

With the existing limited knowledge, the central idea seems

to be to stop the cavity in the tooth so that it will not decay again. This being the case the entire energy and brain of the profession—so-called—is exerted in finding some means to carry out this idea. The filling must be made more than moisture-tight. To do this it must be malleted in with as much force as patient and tooth can stand, regardless of pericementitis, interstitial gingivitis, necrosis of the jaw, and sensitiveness and death of the pulp from thermal changes. It is perfectly absurd to submit the patient to such agony. The cavity must be measured. If it be the size of a pin head, the entire approximal surface of solid tooth-substance must be cut away, thus subjecting the patient to hours of torture—to say nothing of the expense and of the furnishing of a larger surface for the destruction of the pulp by thermal agencies. By filling the teeth the cause is not removed. Under present methods dental technique will never prevent decay.

Apropos to what has already been said may be quoted a paper read before the British Medical Society, at the meeting in Portsmouth, August 1st to 4th, 1899, by Dr. James Cantlie,* on "Early Decay of the Teeth in Britain." He says: "That the teeth of our children are in a bad way is an acknowledge fact, proved over and over again. * * * The result of all such inquiry has been the publication of statistics proving an abnormal amount of disease. The natural importance of this can hardly be overestimated. We cannot expect to rear a healthy race on carious teeth. * * *"

"The cause of this premature and abnormal decay is, however, scarcely dealt with. * * * The dental art has attained so high a position in this country and in America, so far as the mechanics of the art goes, that there is but little more to be done. * * * But I would like to induce our dental brothers to look a little farther afield and to tell us how to raise the child, so that the teeth while yet unerupted and within the dental sacs may be allowed to grow to the greatest perfection."

"The National School of Dental Techniques" is the last straw on the camel's breaking back. It is the essence of narrowness. It will soon wear out its usefulness and become a thing of the past. What is needed to-day is a broad education in pathology that will find the cause and remove it. Dr. Arch. C. Hart, of San Francisco, as represented in his paper on "Evolution of the Decay," has worked along the right lines. He deserves credit for courage in presenting the subject in a new aspect.

Modern methods of practice, such as gold crowns, bridge-work—producing irritation of the gums—cutting away the teeth—allowing the roots to come close together (Bonwill), thus removing support and nourishment from the teeth—are fruitful sources of interstitial gingivitis.

* Brit. Med. Jour., September 2d, 1899.

The application of bridge-work when one or two roots are required to support two or more crowns is certainly pernicious practice. Especially is this true in those cases in which the alveolar process has once become attacked with syphilis or scurvy or poisons, such as mercury, lead, etc., and in those cases in which autointoxication produces interstitial gingivitis. The alveolar processes which have become involved are more susceptible to irritation and finally to loss of structure. From what has been learned in the past four years of the alveolar process and its absorption, implantation and transplantation of the teeth after the jaws have obtained their growth can never be considered a successful operation.

Correcting irregularities of the teeth by the use of springs, ligatures and elastics, after the alveolar process has obtained its growth, requires great skill and judgment to prevent destruction of the alveolar process. Many mouths have been injured by the too rapid movement of the teeth by these instruments. The pernicious habit of "beautifying" the teeth by the use of silk threads, so strongly recommended, has been an object-lesson to many practitioners in the neighborhoods where such operations have been performed. There are many other mechanical operations in which the enthusiast overreaches the mark, the discussion of which is not apropos at this time. Since dental technique has reached such a high state of perfection in our dental schools, it is high time the faculties should turn their attention to the scientific side of dental teaching. No wonder that our British and European confrères have such a poor opinion of our dental schools.

Viewing the subject from a university standpoint, dental college teaching is in a rut, and a deep and narrow one at that. A large percentage of the colleges ought not to exist. While the motive of many of the teachers is honorable, a large proportion of them have not the proper education to teach. Presidents and board of regents of the universities having dental departments should reorganize these schools and place dental teaching on as broad a foundation as other departments of science. The preliminary qualifications, entrance examinations and length of course of study should be the same as in other departments. Then and not until then will dentistry hold the position in the community which it deserves.

OXYPHOSPHATES.

By W. V. B. Ames, D.D.S.

The cement-forming phenomena exhibited by bringing together certain chlorids, phosphates and sulphates, and certain bases, are usually referred to as peculiar if not mysterious. Dental text-books generally, and works on general chemistry dismiss the phenomena without attempting an explanation of the peculiar hardening process which ensues under proper conditions.

I will presume to place myself and you in a position to consider these cements tangibly by assuming that the hardening or setting is simply the result of the formation of basic salts. The formation of basic salts is sufficiently familiar to us. In adding an excess of the oxid of any negative metal to an acid which is a solvent of that oxid there will be instead of complete solution the natural equivalent, a partial solution and then the formation of a basic salt, which will dissolve on addition of excess of acid, but not so readily as would the oxid if added slowly and not crowded to the extent of causing the formation of a basic salt.

Thus from analogy we can assume that oxyphosphate, oxy-sulphate and oxychlorid of zinc is nothing more nor less than a mass in which an excess of zinc oxid granules are held together by basic phosphate, sulphate, or chlorid of zinc, more or less modified by other salts which happen to be in solution in the liquid portion of the cement.

Observations under the microscope of the differences of texture of cements, measurements for shrinkage and expansion and tests for strength have led me to believe that all or most of the differences found in these materials can be attributed to the differences in the basic salt giving the cement-making phenomena.

For example, the most common formula for oxyphosphate of zinc, the one almost universally copied by writers having occasion to use a formula for this material, is the one calling for the solution of glacial phosphoric acid in water, for the liquid. Glacial phosphoric acid is really a mixture of meta phosphoric acid and sodium phosphate, the latter being added in indefinite quantity to give the glassy form desirable for handling. When this is mixed with zinc oxid a double basic phosphate of zinc and sodium is formed which acts to cement together the excess of zinc oxid granules. This sodium zinc basic phosphate is a more porous, friable, cementing substance than would be a straight basic phosphate of zinc, such as would be formed if pure orthophosphoric acid were used as the liquid. This, however, would not give the smooth plasticity and slow setting which is obtained by the addition of sodium phosphate.

This salt is peculiar in imparting those quantities to cement, but unfortunately does not at the same time give density and integrity to the hardened mass.

A happy medium, however, of easy working and density of mass can be gotten by working into orthophosphoric acid the phosphates of some of the metals other than of the alkaline group, such as magnesium, zinc, aluminum, copper, silver, etc., which will impart desirable working qualities and a less porous texture than is found in the glacial phosphoric acid product. This difference in oxyphosphates which really divides them into two classes, the alkaline and non-alkaline, was first mentioned, I believe, by me, in a paper read before the Columbian Dental Congress in 1893. No special cognizance has been taken of this in the interim by others. Writings on the question have not been voluminous. It is a considerable satisfaction, however, to know that in some work being done by another for the International Congress at Paris, of this year, almost the identical opinions will be offered and the cements divided into the same two classes, one in which the liquid contains alkaline phosphates in solution, and the other in which they are absent. Of the first, the brands are legion; of the second, the few can be counted on the fingers.

There has been considerable agitation for over a year, of the undesirable porosity in cements as started by Dr. E. K. Wedelstaedt. The few oxyphosphates showing little or no porosity can safely be said to be of the small minority or second class mentioned. It is safe to say that as a result of the present agitation, the manufacturers will be led to improve their products, since it has been demonstrated that impervious cements with good working qualities can be produced. With an impervious cement, which makes a mass of almost flinty texture such as some obtainable, I am satisfied that results can be obtained infinitely better than writers of a few years since would venture to promise.

When the liquid portion of the cement contains phosphates of *non*-alkaline metals there is apt to be considerable trouble from crytallization, and care must be exercised to avoid this to as great an extent as possible. When the crytals can be easily liquefied the objection only amounts to an annoyance. When the liquid only takes on a slight cast from the formation of minute crystals which will be in suspension or loosely settled at the bottom of the bottle from long standing, these can usually be disregarded if the bottle is shaken each time to evenly distribute. When crystals form which are not easily soluble by warming, and which adhere to the bottom or sides of the bottle, it is safe to say that the liquid is not up to the ideal intended by the manufacturer.

The use of this class of cements calls for greater caution in managing the ingredients, than with the stereotype alkaline

phosphate cement. It is more essential that a non-corrosive spatula be used, as free acid is more in evidence which will attack a steel spatula, forming phosphate of iron to the detriment of the mix, as iron is not one of the metals which can be worked into a cement liquid to advantage. A point which I hesitate to urge is the necessity of scrupulously avoiding the contamination of the liquid within the bottle, by inserting an unclean instrument of any sort. A glass rod or dropper, an orange wood point, a clean, hard tooth-pick, or clean non-corrosive spatula is better for removing the desired amount of liquid than dropping or pouring from the bottle, but be very careful to avoid contamination. The least particle of the cement powder gotten by carelessness into the liquid bottle will tend to cause crystallization.

The means of making the most durable cement filling, I will not presume to advance. I believe in mixing cements for fillings as stiff as they can be, and yet have sufficient plasticity for thoroughly packing to the cavity, never inserting or attempting to pack a crumbly mass. I desire to have the cement attain a decided crispness before attempting to trim it, especially at the cervical margin, and then trim from center when practicable. I have had the utmost satisfaction in the use of tin-foil as advocated by A. Booth Pearsall, for compressing and confining the cement, and for getting the occlusion where necessary, by having the patient bring the occluding teeth into contact upon a piece of tin while the cement is still plastic. For crown setting I can only say that the cement should be mixed as stiff as its working qualities will admit.

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WILBUR F. LITCH, M.D., D.D.S., EDITOR.

MAXILLARY DEGENERACY.

The causal agency at the basis of all physical degeneration is undoubtedly disuse or misuse of function.

The fact has long been recognized that this is especially true of the human maxillæ and, directly or indirectly, of human dentition as well as of that complex of successive and progressive physical and mental degenerations which culminate in the deformed and neurasthenic weakling of modern social life.

It would seem to be a simple proposition that if disuse or misuse of function is the cause of perverted physical growth, a return to normal functional usage would be an all-sufficient cure, and it is undoubtedly true that if children in the formative period in which the trend of physical development is established and dietetic habits are formed and fixed could be given their starchy food, not in the form of mush or other semi-fluid mixtures, but chiefly in well-baked, hard-cruste*d*, home-made bread, not too fresh from the oven, and their meat diet in good, sturdy beef or mutton, with plenty of fiber and a bit of gristle now and then to give their teeth a wholesome tussle, and were made to chew these slowly and well to full insalvation it would be the beginning of better things, not only in relation to dental and maxillary development, but that of the whole physical organism.

As "the child is father to the man" these habits, if once established, would make much easier the displacement from too

exclusive use of dishes which, while generally nutritious and appetizing, are not physically of a character demanding much mastication. Taken largely, or exclusively, as they are, they satisfy hunger and absorb the energies of gastric digestion, thus usurping the place in the dietary which should be taken by foods far more wholesome, and by their character better fitted to bring into play those important digestive processes carried on in the "first stomach," the mouth.

These facts are axiomatic, and yet he must be hopeful even beyond the wont of reformers who can expect that because of such considerations there will be any general abandonment of the gustatory joys of the tender stew, the steaming roll, the savory croquette, the appetizing hash—its humble and obscure poor relation—or even the unspeakable pie of the "hustler's" lunch counter.

Multitudes of Americans have, with characteristic resourcefulness, sought to bridge the dietetic gulf between duty and desire with chewing gum, a material which, while possibly not without its advantages, dynamically and physiologically leaves much to be desired and æsthetically offers much to be deplored.

Unfortunately, the hurry and rush of the age are against dietetic reform, there is not time for mastication; the luxuriousness of the age is against it, for a perverted taste has ceased to crave the viands which make efficient mastication possible.

One ray of light which has broken through the clouds obscuring the outlook is the general revival of interest in athletic sports and exercises.

Darwin, as the result of observation upon the lower animals, makes the statement that in some cases a correlation exists between the development of the extremities and of the jaws, and suggests that in the case of those classes which do not labor much with their hands and feet the jaws are reduced in size from that cause.

If this contention be correct, the converse of the proposition is of course true, and a larger use of the hands and feet will result in an increased size of the jaws.

Without discussing the question as to whether there is an obscure trophic basis for this correlation, a sufficiently obvious fact is that a hard worker, in the active physical sense, is a hearty feeder, with a decidedly primitive taste for substantial food. The hundreds of young men who annually are put upon the simple, but nutritious, dietary demanded by training for athletic sports become examples to themselves, as well as to others, of its beneficial effects.

Through the agency of the bicycle, tennis and golf the last decade has been marked among women, too, by a wide-spread recognition of the fact that work is the chief factor in physical well being, and that there can be no healthful growth of any organ or tissue of the body without it.

Already the influence of this active physical life is manifest in the improved physical endowment of the growing generation; a lustier breed is coming up. Fashion, too, has set her seal upon health; weakness, sickliness and morbidity are no longer "good form," and if Fashion be for a cause who shall be against it! True, she is a fickle goddess, but as a proselyte she should, for a time at least, be zealous, and with "the sex" she is esteemed all powerful.

And, after all, it is to *das ewig-weibliche*—to the bosom, where the race is cradled, and the knee, where the race is trained, that we must turn for cure. From her, infancy and childhood receive their ineffacable impress. As she fits herself for the sacred office of maternity and acquits herself of the high duties of motherhood so will the race wax or wane, so for her offspring will there be a higher physical and spiritual life or a deeper degeneration.

QUESTIONS AND ANSWERS.

Owing to the absence of Dr. Broomell, consequent upon his attendance as representative of the BRIEF at the International Dental Congress, the Questions and Answers department will be omitted for this month, but will be resumed in the October issue.

ANNOUNCEMENTS.

COLORADO STATE DENTAL ASSOCIATION.

At the annual meeting of the Colorado State Dental Association, held at Boulder, Colo., June 12th, 13th and 14th, 1900, the following officers were elected for the ensuing year: E. R. Warner, President, Denver; J. Allen Smith, Vice-President, Colorado Springs; H. F. Hoffman, Secretary, Denver; William Smedley, Treasurer, Denver.

H. F. Hoffman, Secretary.

CORRESPONDENCE.

BELLEVILLE, August 9th, 1900.

EDITOR OF THE DENTAL BRIEF.

Dear Sir:—In the interest of that fruitful field of chemical research, the oxyphosphate field, and with a view of preventing a growth of the "veil of mystery" (see *The Dentist*, Vol. II, No. 49, p. 740), in which the dental profession finds the same surrounded, I ask the use of your esteemed periodical.

So little is known regarding the composition and chemical structure of oxyphosphate plastics, that no definite statements beyond those which are justified by well-known laws of chemistry, can at present be made with safety. But if the very rudiments of this science are to be attacked and doubted, then further investigation leads to conclusions born of mental gymnastics which the careful thinker refuses to follow.

In the *Pacific Dental Gazette*, Vol. VIII, p. 370, Dr. J. Foster Flagg has created a "New Departure Creed," which to any one acquainted with the beaten paths of scientific thought cannot fail to call forth surprise. The section referred to, which relates to the chemistry of oxyphosphates, runs thus:

"It is not to be denied that the nomenclature of dentistry is to be credited with descriptive, concise practicality, rather than with 'scientific accuracy,' but there is no warrant for the almost universal name 'Oxyphosphate' as given to those cements which are the nitrated oxid of zinc products, such as Poulson's, Fletcher's, Justi's, Harvard, Dawson's, Hammond's and others of that class."

With reference to this statement let us ask what is the meaning of the term "oxy." To the chemist it has a twofold meaning. For his own convenience the latter has arranged the various elements in groups, which are termed "radicals." A radical may consist of one element O², divalent oxygen or of two or more elements HO¹, monovalent hydroxy composed of hydrogen and oxygen. The relation of the latter to the former is readily seen in the compound H-O-H, water. Where either of these groups is present in the molecule the term "oxy" may properly be applied. The chief factor in formation of either is

water or some closely allied compound. Salts of zinc and aluminium are both capable of reacting with water to form hydrates or oxy salts, and that this is especially true of the compounds used in dentistry is proven by the fact that the liquids used contain from ten to thirty per cent. water, and that when zinc oxid and phosphoric acid combine water is liberated in the reaction. What becomes of the water from these two sources? Experiments conducted by me show that the greater portion of it is recombined and bound fast. There is only one explanation. The water has combined to form an oxy or hydroxy phosphate. In this instance then it will be acknowledged that "descriptive, concise practicality" and "scientific accuracy" are identical.

A looser sense of the term oxyphosphate would cover a phosphate of zinc containing a quantity of uncombined oxid of zinc acting as concrete or in very loosely bound form.

This is the case with a mixture made of nearly every powder and liquid at present in the market. A plastic mixture made from the above products contains in the neighborhood of three times more zinc oxid than the quantity required by chemical laws to neutralize the available phosphoric acid. In every sense then the term oxyphosphate is applicable, unless Dr. Flagg be right in his newly-made discovery concerning the composition of zinc oxid made from the nitrated product. Let us consider the keynote of page 370 and this paper.

"There is no oxid of zinc in the powders of any properly prepared zinc phosphate"—not that it might not be possible to again make oxide of zinc from nitrated oxid but that no such *transformation is made* by the processes used in making "zinc phosphate" powder.

There is considerable ambiguity and lack of scientific accuracy in this. Considering zinc phosphate as the compound containing three atoms of zinc, two of phosphorus and eight of oxygen, I fully agree with Dr. Flagg. Furthermore, there are a number of possible cases in which no oxid of zinc could possibly be present in an improperly prepared zinc phosphate. That this is not meant follows from the remainder of the sentence. We are left to suppose that the term "zinc phosphate" applies either to a mixture made from the liquid with a powder no longer zinc oxid, or that the term is applied to the powder which at first was oxid of zinc, but by treatment with nitric acid and subsequent ignition changed to a compound, the nature of which Dr. Flagg leaves us entirely in doubt.

As one is the logical result of the other it matters little which is given preference. The fact remains that Dr. Flagg has put himself in direct opposition to generally accepted views.

"We are told by chemists that this result is again 'oxid of zinc,' but this powder has nothing in common with that from which it was made; its 'feel' between the fingers is entirely

different ; its color is light yellow instead of white ; its weight, in equal bulk is more than twice that of oxid of zinc, while its product with phosphoric acid is utterly distinct from that of the oxid."

There are different forms of many chemical compounds both inorganic and organic.

Groups of oxid having the same composition chemically show different crystalline structure, different solubilities and gravities. The same may be said of the very elements which compose these compounds. Carbon exists in the forms of diamonds and graphite—total opposites ; one brilliant, hard and transparent, the other black or gray, soft enough to use as a lubricant and opaque. Phosphorus exists in several allotropic forms and so does silicon. Titanium and aluminium oxids exist in different modifications, etc., etc.

That zinc oxid from the nitrate shows physical properties somewhat distinct from that obtained from other sources is surprising only to one unacquainted with the above facts. Furthermore, if zinc oxid prepared from the nitrate is not zinc oxid it must be a modification of the nitrate and would not contain the calculated quantity of zinc which the oxid requires.

Nitrate of zinc requires 34.39 per cent. zinc ; oxid of zinc requires 80.24 per cent. zinc. The compound suggested by the idea of Dr. Flagg must have a percentage of zinc lying between these two extremes. Such is not the case. I have personally analyzed the powders accompanying the Poulson, Justi and Harvard cements, and with the exception of Harvard, which is a compounded powder of rather complex nature, the results show them to be fairly pure zinc oxid. But whether they had their origin in the nitrate I have no way of telling, not being in a position to ask the manufacturers to reveal their business secrets.

It is very unsafe to venture an opinion concerning chemical composition on the meagre data cited by Dr. Flagg.

Very truly yours,

Herman Fleck.

COLLEGE COMMENCEMENT.

At Los Angeles, California, the commencement exercises of the College of Dentistry, University of Southern California, were held on the afternoon of June 13th at Blanchard's Music Hall, there being eleven graduates. The class roll is as follows:

Harry C. Gleason, President of Class.

Eston P. Hilliker, Secretary of Class.

Cuthbert D. V. Lawford, Class Historian.

J. F. Galloway, W. B. P. Nehbel, Edwin C. Kroeck, James A. Cronkhite, W. Lehman Lowder, Ulric D. Reed, Joseph R. Sabichi.

The presiding officer of the exercises was George F. Bo-
vard, A.M., D.D., President of the Board of Trustees of the University of Southern California.

Faculty address was given by Prof. F. M. Parker, D.D.S., Secretary of the College of Dentistry; address for class by Prof. Henry G. Brainerd, A.B., M.D., Dean of the College of Medicine, University of Southern California. The Dean of the College of Dentistry, Prof. Edgar Palmer, conferred the degree of Doctor of Dental Surgery.

That evening a banquet was given at Hotel Van Nuys to the graduating class. Those present were the members of the class, members of the faculty of the Colleges of Dentistry and Medicine and of the College of Liberal Arts, U. S. C. Many good toasts were responded to by the prominent gentlemen who have been identified with the management and growth of the University of Southern California, and comments made upon the closing of the third year of a very promising career for the College of Dentistry.

Eston P. Hilliker, Secretary.

PATENTS OF INTEREST TO DENTISTS, RECENTLY GRANTED.

654,109, Dental articulator, Henry Backstrom, Montpelier, Idaho.

654,869, Dental engine, Frederick H. Berry, Milwaukee, Wis.

655,051, Fountain spittoon, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.

655,525, Making separable matrices for seamless tooth crowns, Samuel C. Snyder, Scranton, Pa.

633,640, Fountain spittoon, George H. Treadgold, Port Huron, Mich.

REPORT OF THE FOREIGN RELATIONS COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

During the past year the work of the Foreign Relations Committee has been materially extended. Advisory boards in most foreign countries have been provided for, and appointments made to fill them as fast as sufficiently definite information to enable the committee to do this properly could be obtained. Pamphlets containing an exposition of the work and the aims of the National Association of Dental Faculties have been printed and circulated in foreign countries, and a number of circulars of information for members of our foreign advisory boards have been printed and mailed to them. In addition, as directed by the association at its last meeting, a pamphlet containing digests of the reports made at that meeting has been printed and mailed to each member of the association, and to other interested members of the profession in America and abroad.

All this has involved considerable expense for printing and postage, but we believe that it has been a wise expenditure of money, as by its means the dental profession of the world has been made aware of the existence of an association of the regular and recognized dental schools of America which is devoted to the advancement of the cause of dental education and to the elevation of the status of dentistry among all nations.

It is unfortunately the fact that, because of the lack of uniformity in the educational systems of the different States, and the absence of any general supervisory authority on the part of the national government, under some unwise local legislation it has been possible for irresponsible, unqualified and unscrupulous men to secure charters for institutions empowered to grant degrees, and under such authority to issue, for a consideration, irregular and fraudulent diplomas. This traffic has principally been with men in foreign countries, who primarily the guilty ones, have sought to obtain academic honors without the labor necessary honestly to acquire them. As these institutions have been conducted under pretentious names, it was formerly impossible for foreigners who had no intimate acquaintance with American educational affairs to distinguish between the regular and the irregular schools. The organization of this association has established a criterion by which they may be judged, only those owning allegiance to the National Association of Dental Faculties being recognized.

It is unfortunate that the professional situation in America has not in past years been better comprehended in Europe. All our schools have been held responsible for the vile work of the fraudulent ones,—nominally located in this country, but chiefly supported by unprofessional men from abroad. There has even been a grave misapprehension of the objects of this association,

and the work of the Foreign Relations Committee has in some instances been totally misconstrued. All of us are aware that while some of the very best and ablest American representatives have located in foreign countries, and to whose professional career we can point with pride, it is unfortunately the case that some Americans of a different professional reputation have gone abroad and have indulged in practices as offensive to our foreign *confrères* as they are to reputable American practitioners. There are many more unworthy foreigners who have legitimately or illegitimately become possessed of an American degree, and who, without warrant of right, claim the title of "American dentist."

The belief is prevalent in certain foreign professional circles that it is the aim of the National Association and its Foreign Relations Committee to obtain for all such persons professional recognition, and to demand the acceptance of their American degree by the governments of foreign countries. It is but proper that we should in the most authoritative manner deny any aspirations of the kind. This association has not in the remotest manner contemplated any interference with or protest against the laws or regulations governing the practice of dentistry in any foreign country. It has not primarily been the object of either the National Association or its Foreign Relations Committee to attempt to secure for the American dental degree any legal recognition as a qualification for foreign practice. It is not usual in the American States which have legal professional regulations to receive the diplomas of any foreign professional school as a qualification for practice, and we cannot consistently ask that which we refuse to others.

It seems but proper that we should publicly avow the reasons that have prompted the better colleges to form this association of schools, and to appoint a committee charged with the duty of harmonizing our relations with the dental profession in other lands. We seek for the distinctive American dental diploma nothing more than the consideration which its merits demand. If its reputation has been debased by the circulation of counterfeit diplomas, it is something for which we are in no way responsible. In the formative educational period, when dental schools existed nowhere save in America, and when even dentistry itself was undefined, empirical, tentative, with no distinctive line of practice and no clearly prescribed curriculum of study, the newly adopted degree may have been conferred in some instances on insufficient acquirements. The experiment of establishing a special dental educational course of study, and thus laying the foundation for the broad profession which exists in all civilized countries to-day, was first tried in America, and here tested for the whole world. There were no precedents for our guidance, and no earlier successes or failures to stand as landmarks. We were the absolute pioneers, and it would be little wonder if we made some errors.

Since that day other countries have drawn professional lines, and marked out, each for itself, a distinctive course of procedure. Each of these somewhat varies from the others, and perhaps all from that originally established in America. If dentistry is to be accepted as a profession at all, or as a distinct branch of a great mother profession, it must be broader than is any State; it cannot be confined by any bourne, nor limited by mountains, rivers, or oceans. There should be no American, English, German or French dental professions, except as each is a part of one undivided whole. Realizing all this, the National Association of Dental Faculties was organized for, and has been constantly laboring to attain, these definite purposes:

First. To establish a broad and generally accepted curriculum of dental study, and by the combination of all the better dental schools of America to bring each up to a uniform standard of excellence.

Second. To establish a clear line of demarkation between the regular and the irregular schools, and to force out of existence the latter.

Third. Gradually to raise the standard of preliminary education until none but such as have the general erudition that should distinguish a professional man can be accepted in American dental colleges.

These were the principal objects in view, and in the attainment of them success has been secured exceeding the most sanguine expectations of the founders of the movement.

In the development of its plans the association met with many obstacles, and found itself laboring under great embarrassments. One of the chief of these was the lack of information concerning professional affairs in foreign countries. The association decided, so far as was in its power, to co-operate with the worthy dentists of other countries in the laying down of certain broad principles which must be the foundation upon which any true professional practice could rest. Any international co-operation must be based upon a complete knowledge by each of the methods and aims of the others. There can be no concurrent effort without mutual comprehension and intelligence.

Another perplexity was found in the fact that in establishing the preliminary qualifications for matriculation in American colleges there was no rule by which to judge of the value of certificates presented by foreign students. After completing the course of some foreign school, a student, who perhaps spoke only a strange language, sometimes desired to conclude his studies by taking as much of the American course as would enable him to finish it, and he demanded of some American college advanced standing of one or more years. His certificates were in a foreign tongue, and in some instances were found either forged or not that which they were represented to be.

In this emergency, at the earnest request of certain American dentists practicing in foreign countries, who had been scandalized by the acceptance in America of students with improper certificates, a committee, to be called the "Committee on Foreign Relations," was appointed, and was charged with certain definite duties:

First. It was to be in all things subordinate and subservient to the National Association of Dental Faculties, to which body it must make a full report each year.

Second. It was empowered to appoint advisory boards of not more than three members in each foreign country having any professional relations with America, whose reports concerning foreign qualifications might form a basis for action in this country.

Third. It was to have jurisdiction in all foreign educational questions affecting American dental colleges.

Fourth. It was to obtain definite information concerning dental regulations and laws in foreign countries; to learn what were the curriculum and requirements of all foreign dental schools, with the view of determining what value should, under American laws and regulations, be given their certificates of study, either as a qualification for dental practice in America or for admission to advanced standing in American dental colleges.

Fifth. It was charged with the duty of ferreting out institutions engaged in the granting of irregular degrees or degrees irregularly, and instituting measures for their suppression.

In compliance with the first enumerated duty your committee makes this report of what it has done during the past year, and appends the recommendations for future action which its experience leads it to believe advisable. It has earnestly striven to carry out what its members believed to be the wishes of this association, and it has had no policy of its own to inaugurate or attempt to enforce. It has in all things been governed by what it believed to be the spirit of its instructions.

Concerning the second business with which it was charged, your committee begs to report that it has divided the various countries of both the Eastern and Western Hemispheres into convenient groups, and has appointed boards for each, so far as the information obtainable has warranted. In making such appointments it has deemed the following qualifications essential:

First. The appointee should be a regular and reputable dentist, possessing the legal qualifications of the country which he represents.

Second. He must be a graduate of some reputable American dental school, or possess an acquaintance with the curricula of American schools, and be familiar with American dental professional methods. The list of such appointments is appended for the approval of this association.

In the discharge of the third duty imposed upon us your committee has met with great embarrassments. At the very outset colleges, members of this association, appealed to us to know what consideration should be given to certificates showing that proposed students had taken the full course in schools located in Japan and Mexico, which purported to teach the whole dental curriculum. Your committee could not learn that any schools giving a course in dentistry that could be accepted as an equivalent for any part of that demanded by this association existed in either country. They therefore ruled that students from either could only be accepted as members of the freshman class of American dental colleges, and only then if they complied with the rules of the association so far as preliminary education and a knowledge of the English language are concerned. This ruling was cheerfully accepted by the schools that had raised the question, and we present it as an encouraging proof of the loyalty and anxious desire for a high standard that exists among the recognized dental colleges of America.

But the discussion of this raised the question of the consideration that should be given to the certificates of study from any foreign dental school. Our rules provide that no credit shall be given to certificates from any American dental school whose curriculum and regulations have not received the formal approval of this association. Could we, in the name of the National Association of Dental Faculties, approve the giving of advanced standing to students from the schools of other countries that had not the same stamp of regularity? That is, could we extend to foreign and unknown dental teaching institutions privileges that were positively forbidden to American schools? And yet the responsibility of deciding this question has been thrust upon us by this association, and we could not evade the obligation. It took but a short time to arrive at the inevitable conclusion that we could not approve the giving of advanced standing to graduates or undergraduates of any foreign dental school whatever until such school had received the formal indorsement of this body.

Fortunately, few of these questions arose in time to affect any student for the term of 1899-1900. We informed the colleges presenting the cases that the matter would be referred to this annual meeting, and the committee is prepared to offer certain recommendations for the recognition of foreign schools, based upon such knowledge as we have been able to obtain. The whole matter is referred to this body for final adjustment.

In the discharge of the fourth duty that devolved upon us, your committee is in possession of a very voluminous mass of correspondence and reports, which it has earnestly labored to reduce to some system. The advisory boards appointed have, in a considerable number of instances, forwarded as full information

concerning dental schools and the regulations governing dental practice in the countries represented by them as could be obtained, and it is upon such reports that the recommendations of your committee are wholly based. How much of them shall be given to the profession of America by publication must be decided by the association. It would be quite impossible to print the great mass of correspondence unless a large volume should be devoted to that purpose.

Under the fifth head, your committee begs leave to report that a great deal has been accomplished. The same legal counsel employed last year has been retained, and the same general course has been pursued. It is probable that more fraudulent diplomas have been sold in foreign countries during the past year than ever before. This is due to the fact that those who have been carrying on the traffic realize that, because of activity in their prosecution, the time for accountability is near at hand, and they are striving to make the most of the present opportunity.

It is urged by foreigners that this business should be summarily stopped. Such people little know the difficulties in the way. In the first place, the traffic is mostly with foreigners. As their illegitimate diplomas are wholly worthless in this country, no State Board of Examiners recognizing them in any way, those who are engaged in the business carefully cover their tracks, and no responsible man can be located. Attempts to entrap them by means of decoy letters have failed, some such having crossed the ocean a number of times without delivery, being forwarded from one of their foreign agents, through whom the nefarious business is carried on, to another, until finally returned to the writer by the post-office authorities. Fictitious names are signed to the pretended diplomas, so that it has been found almost impossible to fix the guilt upon any person. Our friends in foreign countries have contented themselves with bitter reproaches against American colleges generally, without forwarding any testimony that would assist in the discovery of the guilty ones. The fraudulent institutions could not by foreigners be distinguished from the regular colleges, for they were in possession of charters regularly granted under a vicious law of the State of Illinois, whose entire repeal it had been found impossible to secure, because the interests of legitimate enterprises were inextricably bound up with the illegitimate ones.

Your committee early discovered that working alone it could accomplish little. The Board of Health of the State of Illinois was taking the matter up, and they possessed advantages for the prosecution of the lawbreakers which were not within our reach. We have therefore contented ourselves with co-operating with that board in every way possible, and our counsel has been instructed to offer them any assistance within our power. As a consequence we have great pleasure in reporting

that, acting under the United States law, which forbids the use of the mails for fraudulent purposes, the worst of these offenders have finally been apprehended and committed to jail in default of the heavy bail that was demanded. What is of more importance, if possible, the United States mails are closed against the transmission of their correspondence, and letters to or from them are promptly sequestered.

The greatest offender was last year named in this report as "The Independent Medical College of Chicago." We secured the annulment of the charter of this affair, but in a very short time we found that the same men were yet engaged in the business under the name of "The Cosmopolitan Medical College." They had offered for sale no less than thirty-six different diplomas in all the branches of science and art, and since the forfeiture of the charter under which they first worked it is believed they have sold more than a thousand fraudulent diplomas, at prices varying from ten to five hundred dollars each. Proof sufficient to secure the cancellation of the first charter was only obtained through the inordinate cupidity of the man who was chiefly responsible. He paid a debt of some thirty dollars due to a stable-man, or hostler, by issuing a diploma to him and making him a professional man. The recipient, when he found himself under arrest for attempting to practice under it, betrayed the swindler, and we were thus able to fix his guilt.

The late proceedings against this man and his associates have developed the fact that they were in possession of no less than *twenty-four* different charters, all regularly issued under that mischievous Illinois law, which was enacted for beneficent purposes. We have now learned the methods of these men, and it is believed that it will soon be possible to put an entire stop to their villainous traffic, through the imprisonment under the United States postal laws of those engaged in it. Too much credit cannot be given the Board of Health of the State of Illinois for the active part it has taken in the suppression of these miserable pretenders that have so long been bringing discredit upon our legitimate and excellent educational institutions.

In view of the fact that the other work of the Foreign Relations Committee is more than sufficient to engage all its surplus energies, and in further consideration that the work of the suppression of the fraudulent schools is now well in hand and the path for action fully defined, your committee recommends that this work be, for the future, placed in the hands of the Committee on Law, which shall receive the same instructions as those heretofore given the Committee on Foreign Relations.

The progress that this association is making in its efforts to raise the status of professional teaching in our own country, to obtain a better appreciation of American professional affairs in foreign countries, and to maintain steady advancement toward a dental solidarity among all nations is very encouraging to

every lover of humanity. It is true that even at home there may in uninformed circles yet be found some remnants of an unworthy professional jealousy, a failure to comprehend the real educational situation, and a tendency to attribute to our teachers motives unworthy any honest man. But the steady, persistent work of this association in elevating the accepted standard just as fast as prudence permits, has wrought a great change in professional sentiment and immeasurably benefited the schools, and through them the profession at large. It only remains for us to continue this good work a few years longer to produce results that will be permanent in their character, and so firmly established as henceforth to be self-sustaining.

REPORT CONCERNING FOREIGN EQUIVALENTS.

Your committee has very carefully considered a great mass of correspondence and many voluminous reports, and begs hereby to submit the conclusions which it has reached. It must not be forgotten that the system of dental instruction in Europe varies very widely from that of our special American dental schools. Instruction separate from that given in the medical schools or universities is very rare, and the practical training which forms a part of our curriculum is usually given by private preceptors.

Your committee does not feel at liberty to recommend the acceptance of an oral and theoretical course as the equivalent for one including practical work. We cannot believe that the certificates of private and irresponsible practitioners can by us be accepted as any part of a college course, and hence we have given them little consideration. It is quite probable that in some instances we have recommended that one year's advanced standing be given the holders of some certificates when further knowledge might show that they should be admitted to our senior classes, but we have thought it wisdom to err, if any mistakes are made, upon the safer side, as future action can readily correct any such errors.

Australia.—A very complete report from the various colonies of Australia and New Zealand has been made by the Advisory Board appointed for those countries. It would appear that in most of the colonies there is no dental legislation, but Victoria has lately secured a law analogous to that of England, and in Melbourne a dental school has been organized whose curriculum, from the partial syllabus furnished, seems to be a comparatively broad one. The dean of the "Australia College of Dentistry" is an American graduate, and he appears to have the confidence of the dentists of Australia.

Your committee is unable positively to determine whether the school in all respects comes up to our minimum requirements, but this it has directed its chairman definitely to ascertain, after which your committee will be prepared to recom-

ment to this body some proper action. There has also been established in Melbourne, province of Victoria, the "Dental College and Oral Hospital of Victoria," but your committee is not at the present time in possession of sufficiently definite information to enable it to offer any recommendation concerning it.

In the provinces of Western Australia and Tasmania no dental legislation has been secured.

There is a dental law in New Zealand, and the member of the Advisory Board from that province has furnished your committee with an abstract of it. There are no dental schools in the province.

Switzerland.—Full reports from this country have been furnished by Dr. Bryan. It is a republic analogous to our own country in some respects, the federal union being composed of separate cantons. There are some excellent universities which offer certain facilities for dental study, but their practical instruction, we believe, cannot be accepted as an equivalent for that offered by American dental colleges. Your committee recommends that holders of the Swiss national diploma be given one year's advanced standing in the schools of this association, but that no consideration be at present extended to holders of the cantonal qualifications.

Spain.—Complete reports have been furnished by members of the Advisory Board. The Spanish requirements in medicine are very high, but your committee cannot learn that there are any dental schools, or dental departments of universities, whose course of instruction can be accepted as the full equivalent for the instruction given in American dental colleges.

France.—Your committee is aware that separate dental schools exist in France, and its chairman has been in daily expectation of receiving their curriculum of study, but up to this time has been disappointed. Without this exact knowledge the members do not feel themselves justified in recommending any action, for we cannot proceed in so grave a matter upon mere assertions or impressions. As members of your committee will visit France in the immediate future, and will carefully investigate the course of study, we ask that we be given authority to incorporate our recommendations in this report after such investigation shall have been completed.

Germany and Austria.—The dental schools of these countries are departments of the universities, and only university students attend them. The instruction consists of lectures and clinical work given by from one to three dental professors, who lecture upon the different dental subjects. Instruction in chemistry and allied studies is afforded in the School of Philosophy or Science; in anatomy, physiology, etc., in the School of Medicine. No special instruction is given dental students except by the very few dental teachers. The clinical instruction is largely devoted to extraction and oral surgery. The

practical work is usually quite limited. There is no obligatory course, but students enter for such lectures as they may choose, paying the fees of each professor separately. There are no obligatory hours for study or lectures.

The mechanical instruction consists of lectures on the principles of mechanics, the practical work being usually done in private laboratories. The examinations have very little resemblance to ours, each teacher asking three questions out of a list of forty approved by government. They are not usually as exhaustive or comprehensive or scrutinizing as ours. The licensing or approving power rests with the "Kultur Ministerium," or department of religion and education. The great majority of dentists in practice are *Zahntechniker*—mechanical dentists—upon whose work no restrictions are placed, as they are not recognized by the government.

Your committee recommends that students speaking the English language, who have taken the full dental course in German or Austrian universities, be eligible for reception in the junior classes of American dental colleges, provided it be shown that they have had at least two semesters of competent college instruction in practical laboratory and operative work. It further recommends that students speaking the English language who have had at least four semesters of such instruction in operative and prosthetic practical courses, and who shall have finished the dental course in the University of Berlin, or in any German or Austrian dental school whose course of instruction offers a full equivalent, be eligible for admission to the senior classes of accepted American dental colleges.

Italy.—In Italy the practice of dentistry was long without special restrictions. Then an attendance upon lectures in a medical school was required, and a dental diploma was issued. In 1892 a law was passed which required dentists to obtain a medical diploma. This was not enforced until 1898, when a movement against foreign practitioners was inaugurated. They appealed to the courts and carried the matter to the Supreme Court, which decided that those in practice previous to 1888 had rights which could not be abrogated. At present the law of 1892 is in force, and this requires a medical diploma for the practice of dentistry and phlebotomy.

There are, we believe, no schools in Italy which have courses that can be accepted as equivalent to those of our American dental schools. The instruction given in the medical schools your committee believes to be too exclusively general in its character to form an acceptable course in dentistry for American students.

Mexico.—There is a medical school in the City of Mexico which purports to give dental instruction. Your committee cannot learn that it is of such a character as will enable it to be accepted as the equivalent for a course in an American college.

Japan.—There is one dental school in Japan—that of Dr. Takayama, in Tokio. It confers no degree, but gives a certificate which entitles the holder to government examination, the same as if he had studied with some practicing dentist. As the instruction is personal and the school is quite irresponsible, your committee believes that no consideration can be given to it.

Holland and Belgium.—In these countries the title of dentist is obtained by passing a practical examination in the theory and practice of dentistry. There are no separate dental schools, and we are not sufficiently informed of the comprehensiveness of the syllabi of the universities to offer any recommendations concerning them.

Great Britain.—There can be no questioning the fact that England has some excellent dental schools. The only embarrassing circumstance in the determination of their status relative to ours lies in the great difference between the educational systems of the two countries. Undoubtedly they place greater stress upon preliminary educational requirements than do we, but your committee is of the opinion that our practical instruction is superior. Originally, we believe, there was little instruction given in prosthetic work during the term of attendance upon hospital lectures. Students were supposed to come to the college for didactic instruction, the practical part having been previously communicated by a preceptor. It should be comprehended that English dentists frequently employ a mechanic, who is not required to possess any special educational qualifications, the registered dentist mainly confining his attention to the operations of the surgery or operating room.

In this country we believe the practical work of the laboratory should form a part of the college course, and we do not graduate a student until he shall have satisfactorily completed the whole curriculum within the college walls. We are under the impression that the English system is undergoing a change in this respect, and that practical laboratory work will soon form a part of the obligatory college course. We recommend that all students who shall have finished the complete course in any recognized English, Irish, or Scotch dental school or hospital shall be eligible for reception as senior students in American dental colleges upon proof of their having taken as a part of such course two years of instruction in a properly equipped dental laboratory and dental infirmary connected or affiliated with such dental school or hospital, and which requires the successful completion of the work deemed essential by recognized American schools, as formulated in the minimum requirements for foreign dental schools accompanying this report. We further recommend that for the present no consideration be given to partial courses in any of the dental schools of Great Britain.

Sweden.—Very complete reports have been furnished by the Chairman of the Advisory Board, Dr. Förberg.

The country has one dental school, which is the dental department of the "Carolina Medico-Chirurgical Institute of Stockholm." Instruction is given by five professors of the medical department, and there are three dental professors, occupying respectively the chairs of dental surgery, operative dentistry, and dental prosthetics and orthodontia. From the assurances given by Dr. Förberg, your committee believes that its graduates should be permitted to enter the second-year class of recognized American dental colleges, provided they shall have complied with our requirements concerning mechanical laboratory work.

Your committee has not sufficient knowledge concerning this school to warrant further recommendations at present.

Canada.—In the Dominion of Canada there is but one school which demands consideration, and that is a member of this body. Yet the educational systems of the two countries, especially in professional matters, are so different as to engender continual embarrassments. Canada being a foreign country, your committee has felt itself bound in duty to place it in the list of those countries whose relations with us must be taken into consideration. The dental educational system of Ontario approaches more nearly that of England than that of America. It has an analogous system of indentures which the dental student must sign, and private preceptorship forms a portion of its obligatory instruction.

This is directly at variance with our system, which accepts no tutorship by irresponsible parties. The dental law of Ontario forbids the entrance upon practice of any one who has not taken his final course of instruction in the Royal College of Dental Surgeons of Ontario. We believe that this principle is the correct one, and that the same rule should be made applicable in the United States, and that here, as there, no foreign qualification should be sufficient for registration in the various States of America. But the membership of this foreign school in our association presents an embarrassment which for the present seems insuperable, and your committee therefore has no recommendation to make, but leaves the matter for future consideration in the hope that some code of international agreement may be devised which will give to the graduates of America's recognized colleges who desire to practice in Canada the same privileges extended to the alumni of the excellent Ontario Dental College.

Concerning other foreign countries, your committee is not in possession of sufficiently definite information to warrant any action whatever. We have no knowledge of the existence of any courses of instruction which can be accepted as an equivalent for courses in the institutions having membership in this body, and therefore advanced standing in our schools cannot in justice to our own students be granted, save in the instances above

enumerated. The committee will gladly make use of any further information which may be furnished them, and will, in the furtherance of the duty with which they are charged by this association, embody such knowledge in future reports.

REPORT CONCERNING THE MINIMUM REQUIREMENTS TO BE DEMANDED BY THE NATIONAL ASSOCIATION OF DENTAL FACULTIES FOR THE RECOGNITION OF FOREIGN DENTAL SCHOOLS WHOSE STUDENTS DESIRE ADVANCED STANDING IN THE COLLEGES BELONGING TO THE ASSOCIATION.

1. The college must require of matriculants a preliminary education which is the full equivalent of that demanded by the schools of this association.

2. The college must demand of students full attendance upon at least three full annual courses (not semesters) of lectures of not less than seven calendar months each, in separate years, covering all the studies proper to a full dental curriculum.

3. The college must possess a bacteriological laboratory, with sufficient of equipment for instruction in a competent course in bacteriology, which must form a part of its curriculum of study.

4. The same must be required in chemistry, histology, and pathology.

5. There must be a technic laboratory in which shall be taught the proper manipulations for the insertion of all kinds of fillings for teeth, the preparation and filling of the roots of teeth, the tempering and shaping of instruments, the drawing of wire and tubing for cases in orthodontia, and the cutting of bolts and nuts.

6. There must be prosthetic laboratories sufficiently equipped for teaching all kinds of prosthetic work, and the construction of all the approved prosthetic appliances.

7. There must be a sufficiently equipped laboratory for instruction in making crowns and bridges, and the construction of appliances used in orthodontia.

8. There must be a properly equipped infirmary or surgery for the reception of patients, upon whom each and every student shall be required individually to perform all and enough of the operations necessary in dental practice thoroughly to qualify him for the successful pursuance of his profession.

9. Complete records of the work done by each student, of his attainments at sufficient and full examination in each subject of the curriculum of study, of his attendance and deportment during the course, must be permanently kept.

10. No credit must be allowed for any work not done under the immediate supervision of instructors connected with or especially approved by the college, and who are in direct affiliation with the faculty.

The following is a list of the countries for which Advisory Boards have been designated, and the appointments and nominations so far as made.

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
Great Britain.	Wm. Mitchell, D.D.S.	Univ. of Michigan.	39 Upper Brook st., London, Eng.
" "	W. E. Royce, D.D.S.	Phil. Dental College.	2 Lensdale Gardens, Tunbridge Wells, Eng.
" "	B. J. Bonnell.	.....	94 Cornwall Gardens, So. Kensington, London.
Holland and Belgium.	J. E. Grevers, D.D.S.	.....	13 Oude Turmarkt, Amsterdam, Holland.
" "	Ed. Rosenthal, D.D.S.	Harvard Univ.	19 Boul. du Regent, Brussels, Belgium.
" "	C. Van der Hoeven, D.D.S.	.....	Der Haag.
Denmark, Swe. & Nor'y.	Elof Förberg, D.D.S.	Phil. Dental College.	Sturegatan 24, Stockholm, Sweden.
" "	S. S. Andersen, D.D.S.	Univ. Pennsylvania	Christiania, Norway.
" "	L. P. Vorslund Kjaer, D.D.S.	Phil. Dental College.	Copenhagen, Denmark.
Russia.	H. V. Wollison, D.D.S.	N. Y. Coll. Dent.	10 Quai de l'Amaranti. St. Petersburg, Russia.
" "	Theo. Weber, D.D.S.	N. Y. Coll. Dent.	Helsingfors, Finland.
" "	Geo. Th. Berger, D.D.S.	Phil. Dental Coll., '77.	St. Petersburg, Russia.
Germany.	W. D. Miller, D.D.S.	Univ. Pennsylvania.	Victoriastrasse 39, Berlin, Germany.
" "	C. F. W. Bödecker, D.D.S.	N. Y. Coll. Dent.	55 Unter den Linden, Berlin, Germany.
" "	Friedrich Hesse, D.D.S.	N. Y. Coll. Dent.	Goethe Str. 6, Leipsig, Germany.
Austria and Hungary.	Dr. Szigmondi.	.....	.....
" "	Dr. Waesser.	.....	.....
" "	Dr. Arkövy.	.....	.....
Italy and Greece.	Albert T. Webb, D.D.S.	Univ. Pennsylvania.	87 Via Nazionale, Rome, Italy.
" "	Tullio Avanzi.	.....	.....
" "	A. V. Elliott, D.D.S.	Univ. of Mich., '87.	10 Via Tornabuoni, Florence, Italy.
France.	J. H. Spaulding, D.D.S.	Univ. Minnesota.	39 Boul. Malesherbes, Paris, France.
" "	I. B. Davenport, M.D.	Coll. P. & S., New York.	29 Ave. de l'Opera, Paris, France.
" "	G. A. Roussell, D.D.S.	N. Y. Coll. Dent.	74 B'd Haussmann, Paris, France.
Spain and Portugal.	R. H. Portuondo, D.D.S.	Univ. Pennsylvania	Paseo de Recoletos 3, Madrid, Spain.
" "	Florestan Aguilar, D.D.S.	Phil. Dental Coll.	Serrano 5, Madrid, Spain.
" "	T. J. Thomas, D.D.S.	.....	Bilbao, Spain.
Switzerland and Turkey.	L. C. Bryan, D.D.S.	Boston Dent. Coll.	1 Steinenberg Basel, Switzerland.
" "	Theo. Frick, D.D.S.	Univ. Pennsylvania	14 Tonhallenstrasse, Zurich, Switzerland.
" "	Paul J. Guye, D.D.S.	Penn. Dent. Coll.	12 Rue de Candolle, Geneva, Switzerland.
Japan, China and India.	Louis Ottofy, D.D.S.	Western Dent. Coll	87 Main street, Yokohama, Japan.
" "	J. Ward Hall, D.D.S.	.....	Shanghai, China.
" "
Australia & New Zealand	Alfred Burne, D.D.S.	Phil. Dent. Coll.	1 Lyons Terrace, Liverpool street, Sydney.
" "	A. P. Merrill, D.D.S.	.....	52 Collins st., Melbourne
" "	.....	Phil. Dent. Coll.	216 Queen st., Auckland, New Zealand.
" "	Herbert Cox, D.D.S.	Univ. of Mich.	.....
Cuba & W. India Islands	.....	.....	47 San Francisco st., San Juan, Porto Rico
" "	Rice R. Buchanan, D.D.S.	.....	.....
" "
Mexico & Cent. America.	.....	.....	.....
" "
Venez., Colom. & Ecua'r.	.....	.....	.....
" "
Peru, Bolivia and Chili.	S. R. Salazar, D.D.S.	Chicago Col. Dent. Surg.	Lima, Peru.
" "
" "
Brazil and Guiana.	.....	.....	.....
" "
Argentine, Para. & Ura.	.....	.....	.....
" "

W. C. BARRETT, *Chairman*, 208 Franklin St., Buffalo, N. Y.
 S. H. GUILFORD, 1728 Chestnut St., Philadelphia, Pa.
 J. D. PATTERSON, Ninth and Walnut Sts., Kansas City, Mo.
 T. W. BROPHY, 126 State St., Chicago, Ill.
 H. W. MORGAN, 211 N. High St., Nashville, Tenn.

Foreign Relations Committee.

Practical Points.*

Injuries to the Mucous Membrane.—For painting those little breaks caused by the sharp edge of a denture use compound tincture of iodine. *Dental Review.*

To Remove Plaster of Paris from the Hands.—Moisten a little sugar on the hands and thoroughly rub the same into the plaster adhering to the hands. It will disorganize the plaster, and is one of the best agents to use for this purpose. *Eclectic Medical Journal.*

Hemorrhage After Tooth Extraction; Picric Acid.—Place a drop of creosote, or carbolic acid, and a drop of nitric acid side by side on the top of an inverted glass. Now take a pledget of cotton and dip it first in one and then in the other, and after waiting a moment pack securely in the alveolus. The union of the creosote, nitric acid and cotton forms a violently explosive compound, and must be handled with care. *Dr. G. T. Baker, International Dental Journal.*

Continuous Gum Facing Compound.—To give as nearly as possible the appearance of gum tissue when using plain teeth for vulcanite dentures, the "Continuous Gum Facing" closely resembles porcelain continuous gum, is inexpensive, easily applied, and when thoroughly hardened retains well its color and form. It should have from six to twelve hours in which to harden, placing it in the sun or other warm place to hasten the process. By using aluminum as lining and continuous gum compound as a facing makes a plate that is healthy, cleanly and handsome at little expense. *J. J. Grout, Dental Digest.*

To Prevent Injury to the Teeth of Plaster Models in Adjusting Crowns for Bridge-work.—Make little ferrules from very thin sheet copper, say 32 gauge. After the caps are made and placed on the teeth in the mouth, and the impression taken to secure proper position on the cast, so that the dummy teeth may be properly ground and adjusted, place these ferrules inside of the abutment caps, adapting them to a snug fit before pouring the cast. When the cast is poured the caps will be easily removed from the plaster which are bound or covered by the copper ferrules, so that the caps may be removed and replaced as often as necessary without marring the copper-bound teeth, and also always compel the placing of the cap in exactly its right relation and position. *Dr. Siddell, Dental Register.*

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Bay St. Louis, Mississippi.

Treatment of Lead.—Sulphur added to molten lead will cause it to be clean and pliable when cooled.

P. A. Mariotte, Pac. Den. Gazette.

Protecting the Hands from Infection.—Before touching septic cases it is an excellent plan to wash the hands in vinegar or dilute acetic acid. Slight cuts or abrasions, whose presence was not suspected, are thus revealed, and you may better protect yourself.

International Journal of Surgery.

Chloretone the Ideal Anæsthetic.—For hypodermic injection for extractions 15 per cent. alcohol, with 85 per cent. distilled water, and enough chloretone crystals to make a saturate solution. No toxic effect upon the heart and does not cause sloughing or swelling. Has all the good qualities of cocain, with none of the objectionable effects.

Michael Leo, Items of Interest.

The Final Finish of Gold Fillings.—In putting on the final polish I use a thin cuttle-fish disc, and lastly crown paper disc. There is a chamois disc, with a celluloid back, which is the best thing I know of for places where it can be used, as it takes out the slight scratches of crown paper, polishing so smooth that even with a magnifying glass you can distinguish nothing but a smooth surface.

W. M. Megginson, Ohio Den. Jour.

To Mark Exactly on a Denture the Spot Corresponding to a Wound of the Mucous Membrane.—Cut a disk of suitable size from paper gummed on one side, and place it carefully over the ulcerated spot, gummed side up. Moisten the denture and place in position with light pressure. Remove carefully and the disk will be found adherent upon the point wounding the membrane, which can then be relieved.

Revue de Stomatologie.

Alloy Cement.—For the alloy:

Silver.....	40
Tin	60
Platinum.....	3

For the cement:

Oxid of zinc.....	200
Borax	5
Silex.....	8
Glass.....	6

With phosphoric acid to dissolve to the consistency of glycerin.

Of the cement and the alloy equal parts, mixed and prepared as an ordinary zinc phosphate filling. It has all the qualities of any cement and also presents a metallic surface, a good non-conductor. While attaching itself to the tooth like an ordinary cement it is practically a metal filling.

C. B. Parker, Dental Cosmos.

Hard Wax for Crown- and Bridge-work.—Take of gum damar seven parts and of beeswax four parts. Melt the gum damar and then add the wax. If too brittle add more beeswax.

Burt Ogburn, Pennsylvania Dental College.

Trial Plates.—I much prefer a swaged plate made of block tin. They are made to the approximate thickness of the intended vulcanite, and I find them very satisfactory in adjusting to the mouth, in getting the articulation, and adjusting the teeth when they are waxed in place.

Wm. H. Trueman, International Dental Journal.

Sensitive Dentin.—Two doses of chloral hydrate, of 10 to 15 grains each, taken one the evening before on retiring, and the other next morning before operation begins, is better than cataphorisis or anything else I have ever tried. Dr. H. E. Beach, of Clarksville, Tenn., suggested this several years ago, and he is entitled to the honor.

John T. Crews, Dental Headlight.

Gold and Platinum.—Gold and platinum should be employed to a greater extent than it is to-day, for while its manipulation is somewhat more exacting than that of gold, its intelligent use will lead to artistic results unattainable with gold alone, and its superior density adds greater permanence to the surfaces of all fillings which are in any way subject to attrition.

C. N. Johnson, International Dental Journal.

Painless Operations.—When you do not wish to use cocain solutions or other drugs that are liable to be poisonous, take a pair of pointed pliers and dip in a solution of chloral-camphor and pass it gently around the root of the tooth (freed from blood and saliva), and an operation that is usually very painful will in many cases be entirely painless, in others almost so, and you have no bad-smelling drug in the mouth.

A. W. Harlan, Den. Review.

Europhen in Root-canals.—Apply rubber-dam and cleanse the canals. Rub a few grains of europhen into crystals of carbolic acid (on cement slab) till you have a thick paste. Wrap a fine smooth broach with fibers of absorbent cotton; take up a little of the paste and introduce into canal with a pumping motion until full, then heat a fine broach in alcohol flame and introduce quickly into canal, repeating until it no longer fries. Then fill canal with gutta-percha points previously warmed and rolled in europhen. Advantages: rapidity, thorough asepsis, sweet-smelling canal.

E. J. Schumann, Dental World.

Cavity Cleansing; Hydronaphthol.—For cleansing a cavity previous to the introduction of a filling I use a solution of seven grains hydronaphthol to an ounce of alcohol.

G. Monroe, Dental Review.

Sticky Gutta-Percha Fillings.—Touch warmed gutta-percha, on its way to the cavity, with oil of cajeput. On account of the increased stickiness of the gutta-percha so treated, the filling actually cements itself to the walls of the cavity. It can even be applied wet, and so is of real value in treating a patient ill in bed, etc. *J. F. P. Hodgson, International Dental Journal.*

Lactate of Silver in the Treatment of Chronic Abscess.—I have experienced much benefit from lactate of silver in the treatment of chronic abscesses at the roots of teeth, succeeding with it where other remedies have failed. I use one part of the powder to 500 of water, injecting with hypodermic syringe through the fistulous opening well into the abscess.

H. W. Moore, Dental Digest.

To Replace Porcelain Fronts without Removal of Bridge.—Procure porcelain front in color, size, etc., to match the one lost, grind tooth down same as for bridge-work, fit same accurately in vacant space on bridge. Bore two holes in bridge (in center of space) to fit pins in tooth to be adjusted. On back of bridge around holes cut out a round circle (using round bur to make undercuts). With a small saw or knife roughen pins on tooth, after heating tooth and space in bridge thoroughly dry. Mix cement to same consistency as used for setting crowns, place same on tooth and in space, gently press tooth in position. With a heavy instrument press pins in circle cut out on back of bridge and fit space with amalgam. The above I have used with very great satisfaction to myself and patients.

J. A. Richard.

Alcohol and Caries.—Alcohol, if properly used, is able to arrest those stages of inflammation and infection of the pulps of teeth and of the dentin, which are only too well known to the physician under the name of caries. The treatment with alcohol will not alone arrest those processes, but will, if used persistently for some time, restore the already softened dentin to a hard and insensible stage; yea, it is even possible to slowly cause the formation of new dentin in place of that already broken down. * * Such treatment has to be done thoroughly and persistently. * * The gums will become hard and less sensitive. The results are due to the increased provision of arterial blood to the teeth. Caries will be cured under the influence of alcohol in the same way as abscess heals.

Prof. Buckner (Munich), Ohio Den. Jour. (Translation).

A New Metal for Dies for Swaging Plates.—Lumen metal works very much like Babbitt, but is very much harder. It makes a nice clean die, and apparently does not shrink or expand.

B. D. Wikoff, Dental Review.

Arrest of Hemorrhage.—(Chlorid of aluminum sold to dentists by dealers under the name of manrobin.—Dr. Werner). This is an astringent that ought to be more widely appreciated than it is. It is non-irritating; that is, it does not produce inflammation, though in strong solution it produces smarting.

Dr. Briggs, International Dental Journal.

Cement Fillings.—I have had the utmost satisfaction in the use of tin-foil as advocated by A. Booth Pearsall, for compressing and confining the cement and for getting the occlusion where necessary, by having the patient bring the occluding teeth into contact upon a piece of tin-foil while the cement is still plastic.

W. V. B. Ames, Dental Register.

To Finish and Polish Occlusal Fillings.—A rubber disc will cut faster, is more easily handled, and will polish just as smooth as the best moose-hide points that can be bought. The rubber disc is cut out of rubber packing having a layer of rubber on the outside of a piece of canvass. It will hold the pumice and cut faster than anything else you can get.

W. M. Megginson, Ohio Den. Jour.

Opening Up a Dead Tooth.—I would not attempt to remove all of the débris at the first treatment, but only sufficient to permit placing a piece of cotton saturated with a mixture of iodine and creosote, sealing it in for twenty-four hours. The ammonia and the alkaloids always present in decaying animal matter will both be decomposed by the iodine, the presence of the creosote preventing further decomposition. Hence the value of the combination in treating these cases.

Thos. L. Gilmer, Dental Review.

Platinum Foil for Matrix for Porcelain Inlay.—To get a good matrix is the most difficult part of inlay work, requiring the greatest care and exactness. I take a piece of the softest platinum plate I can obtain, about an inch square, of, say, 28 or 30 gauge. I anneal it and roll it as thin as possible. I then anneal it again, and when cool oil it to prevent adhesion, fold it once, the long way, making two thicknesses. Roll it again as thin as can be done; anneal again; oil as before, and fold again the long way, making four thicknesses. Then roll as thin as possible, which gives four layers of platinum foil that is suitable for inlay work and fillings.

Geo. N. Schwartz, Items of Interest.

Miscellany.

A Seven-hundred-pound Patient.—Mrs. Hannah McKenzie, who is 58 years old and who is said to weigh 700 pounds, was taken to Harlem Hospital. It required the services of nine men to carry her from the fourth floor of the house in which she lived down to the hospital ambulance. She has had a reputation as the fat lady in a dime museum. *Medical News.*

Mothers and Alcohol.—Maurice Nicloux (*L'Obstétrique*, March 15th, 1900) reports an extensive series of experiments with the following conclusions: Ingested alcohol passes from the mother to the fetus and into her milk, the proportion in the blood of the fetus and in the milk being about the same as in the blood of the mother. Therefore the nervous conditions, drunkenness, anæsthesia, etc., of the drinking mother must indicate a marked toxicity in the infant, and the whole baneful influence of alcohol upon the tissues is exerted during their process of formation, with especial injury to the nervous supply.

Dry Storage Batteries.—In the *Centralblatt für Accumulatoren und Elementenkunde*, Herr Liebenow discusses the question of dry storage batteries, and states that in his opinion no attempts in this direction are likely to be successful. It has been shown in investigations into the action of secondary cells that there are electrical-concentration currents set up which tend to convey the acid in the pores of the plates from points of maximum to points of minimum concentration. These currents are necessary to equalize the strength of the acid, and effect this far more readily than would be done by diffusion acting alone. When a gelatinous electrolyte or a dry, non-conducting powder is introduced between the plates, this equalization is prevented, and the cell is soon exhausted.

Abbreviations.—There is a singular tendency in English "medicalese" to resort to abbreviations and initials of various sorts, most of which are comparatively unknown among us, in spite of our alleged tendency to clip and shorten everything. For instance, a general practitioner is always referred to as a "G.P.;" a house physician or house surgeon as an "H.P." or "H.S.;" a case record of tabes dorsalis is headed with the mystic letters "T.D.;" one of general paralysis of the insane, with "G.P.I.," and the same contractions are habitually used in conversation. A unique combination of initials as a diagnosis endorsement is reported to be in vogue at University College Hospital. Whenever a case which is clearly serious enough for admission proves too complicated or difficult to warrant a precise diagnosis upon the hurried examination of the receiving-room, it is promptly initialed "G.O.K." and sent up to its appropriate ward for adequate investigation at leisure. The mystic characters signify simply "God only knows." *Medical News.*

Forced Dilation of Thorax to Arrest Epistaxis.—The subject sits erect on a chair, places both arms on his head and breathes quietly and as deeply as possible, with open mouth. The veins of the head and neck are emptied of blood by this procedure and the hemorrhage stops. The *St. Petersburg Med. Woch.* mentions that Fedorowitsch has cured fourteen severe cases by this simple means, all children but one.

Journal American Medical Association.

Athletics Barred.—The College of Physicians and Surgeons of Chicago, after an animated debate, has decided henceforth to refuse recognition to athletics and no longer gives official sanction and support to the college football team which has taken so prominent part in inter-collegiate athletic competitions. This step has been taken because experience has taught the faculty that college athletics have a demoralizing and disturbing influence on the students and interfere with the educational work of the college.

Medical News.

Orthoform.—Luxenburger has shown that orthoform, when dusted on the colony, will within two days check the growth of the pyogenic microorganisms growing on agar-tubes. A one-third per cent. solution of the drug will do the same thing. But it was also shown that orthoform only checked the growth and lessened the virulency, and did not kill the bacteria. For these reasons the drug cannot be looked upon as a true antiseptic. One of the most valuable qualities of orthoform is its anæsthetic property. When applied to an irritated granulating surface either as an ointment or dusting-powder within five minutes the sensibility markedly subsides and the anæsthesia lasts for hours or days.

Philadelphia Medical Journal.

Michael Angelo's Physique and Health.—Michael Angelo is described as having been of middle height and broad across the shoulders. He was not fat and his features were marked, his forehead being square. His nose had been broken in early life by a blow from a fellow-student, which had caused permanent disfigurement. In some of his portraits this is represented; others giving him a good nose of Roman type. He had been weakly in youth, and probably dyspeptic, for through life he was very careful in his diet. He was accustomed to say: "However rich I may have been, I have always lived as a poor man." In spite of this care, however, he suffered late in life from gravel and stone. It is on record that he had much trouble with cramp in his legs. His father had attained the age of 92 years, and he himself was only a year short of 90 when he died, having retained his faculties to the last.

Hutchinson's Archives of Surgery.



NOTES *from the* PUBLISHER



WE PROPOSE TO GIVE YOU MORE FOR A
DOLLAR THAN YOU CAN GET IN ANY
OTHER DENTAL JOURNAL.



The DENTAL BRIEF has always been the leader of the best dental journals published, and to make it even better than it has been heretofore we have gone to an unusual expense in sending Dr. I. Norman Broomell to Paris to attend the International Dental Congress now in session, as a special representative and solely in the interest of this journal. Dr. Broomell's report of the proceedings, clinics, papers, discussions, etc., written in his characteristic style, will be highly instructive and interesting. These papers, the first of which was written while on his trip across, and during his first day in Paris, and appears in this number, will be illustrated by Dr. Broomell, who is an expert photographer. We want every dentist in the United States to watch us for the next sixteen months. If you are not a subscriber to the BRIEF, here is a proposition for you: We will send to any dentist in the United States or Canada the DENTAL BRIEF the remainder of the present year and until January, 1902, for one dollar.



THIS OFFER SHOULD NOT BE CARELESSLY
OVERLOOKED.



HENRY H. BURCHARD.

THE DENTAL BRIEF.

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PHILADELPHIA, OCTOBER, 1900.

No. 10

ORIGINAL COMMUNICATIONS.

The International Dental Congress, Paris.

By I. Norman Broomell.

August 8th, 1900, brought to the city of Paris a body of good-looking, enthusiastic, scientific men, the assembly constituting the Third International Dental Congress.

The work accomplished at this meeting was of such a character that it will leave behind a lasting impression for good, lingering in the memory of those fortunate enough to be present, as a brilliant epoch in the history of the dental profession. Most of the Americans and other foreigners in attendance were somewhat handicapped by the fact that the deliberations were for the most part in the French language, and the discovery was soon made that it was one thing to be able to read and speak French and an entirely different thing to understand this fascinating method of communication when used in its native land. This complication, however, did not appear to detract from the general interest taken in the Congress, the sessions and clinics were well attended, and the whole affair was a pronounced success. Too much credit cannot be given to the Committee on Organization, a photograph of the members of which appears in this issue of the BRIEF. There is much question as to the advisability of holding such meetings at a time and place made attractive by some unusual event. While to a few such conditions might prove an incentive, to many the Exposition at Paris carried with it such a premonition of crowded hotels, congested transportation and lavish disbursement of funds, that a decision to remain at home was inevitable.

At the beginning of the sessions the Committee on Organization issued the following call:

"At the end of the finishing century the Exposition Universelle de Paris will have been, in a sense, the register of the progress of human knowledge in industry and art, and the Congresses which accompany it will be without parallel in science. It is necessary, occasionally, in the march of time to cast a backward glance over the route already traversed, for thus we learn useful lessons for the time to come.

"It is in this spirit that the Congresses, which have been held up to the present, have been instituted; it is in this spirit that we meet here now, and if there is any body for which this reunion might present an interest of the first order, it is, without doubt, ours.

"Obliged to struggle in the scientific world against the prejudices of caste, which its special character excites against it, and further against prejudices which time has too slowly effaced, it was necessary that the dental profession should come together in a meeting worthy of its social importance and of its scientific value.

"This is the understanding of our confreres of France and other lands. Those, and they are many, who can sacrifice, for speculative studies, a part of their time, have favored us with the results of their laborious researches. They define the limits of the field of the unknown into which their labor has advanced, and even in the unknown they blaze the path for future generations.

"Those who occupy themselves more specially on the professional side and labor to place the dental art in its true position between general medical science and the specialties derived therefrom, have furnished us the results of their labors.

"They have told us their desiderata. They have shown us the means of obtaining the desired results.

"They have seen that they can bring us a powerful and useful aid in uniting with us.

"They have joined the Congress, and, thanks to this participation, the great professional manifestation which we have been preparing so long has attained a success for which we dared not hope. But the labor of the Congress is not yet accomplished. So far, we have shown that the dental body could, when the occasion presented itself, furnish a considerable number of men renowned for their learning, respected for their labors and willing to devote themselves to a work of common professional interest. That is well for the world; but it is not enough for us.

"It is necessary that the discussions which are about to commence should result in all the light possible. It is necessary that we gain here the maximum of information we can hope for.

"Above all, we are confreres, and we ought to work not for the purpose of personal distinction, but with the thought of bringing our obolus to the common patrimony. It is the spirit

in which the organization of the Congress has been conceived; it is, we do not doubt, that which animates all our confreres, and more than the rest, those who lend us their presence and sit in our meetings.

"We extend them our cordial thanks and salute them fraternally."

**Formal Opening
of the
Congress.**

The inauguration session of the Congress took place on the morning of August 8th, in the assembly room of the Palace of the Congresses within the Exposition grounds, and a brilliant and interesting affair it was. On a spacious platform, well elevated above the general floor, the members of the committee-general took their places about the presiding officers and official heads of the various national committees who had previously taken their position in the center of the stage. Comprising this central group were Prof. Brouardel, of the Faculty of Medicine of Paris, serving in the capacity of honorary president; Prof. Gariel, also of the Faculty of Medicine of Paris, acting president, and the following representatives from foreign countries: Drs. Brunton, of Leeds, and Cunningham, of Cambridge, representing England; Drs. A. W. Harlan, of Chicago, and W. W. Walker, of New York, representing the United States; Prof. Lemberg, of St. Petersburg, representing Russia; Prof. Hesse, of Leipsic, representing Germany; Dr. Anguilar, of Madrid, representing Spain; beside Drs. Frank, of Vienna, Liberg, of Stockholm, Grevero, of Amsterdam, Baruch, of Brussels and others. Seated upon the platform, in addition to those already mentioned, were the directors and professors of the two dental schools of Paris. But the platform did not contain all the cream of the occasion, the audience, which almost filled the spacious hall, was enriched by the presence of many "shining lights" from all quarters of the globe. In all, fourteen countries were represented, covering thirty-four societies and institutions of learning, the United States being strongly in evidence with sixty-three delegates.

**Mr. Godon, the
First Speaker.**

M. Godon, Chairman of the Committee on Organization, was the first speaker. He informed the Congress that they had been officially received by a representative of the French Republic, he welcomed the President of the Congress, the delegates of the various governments, universities,



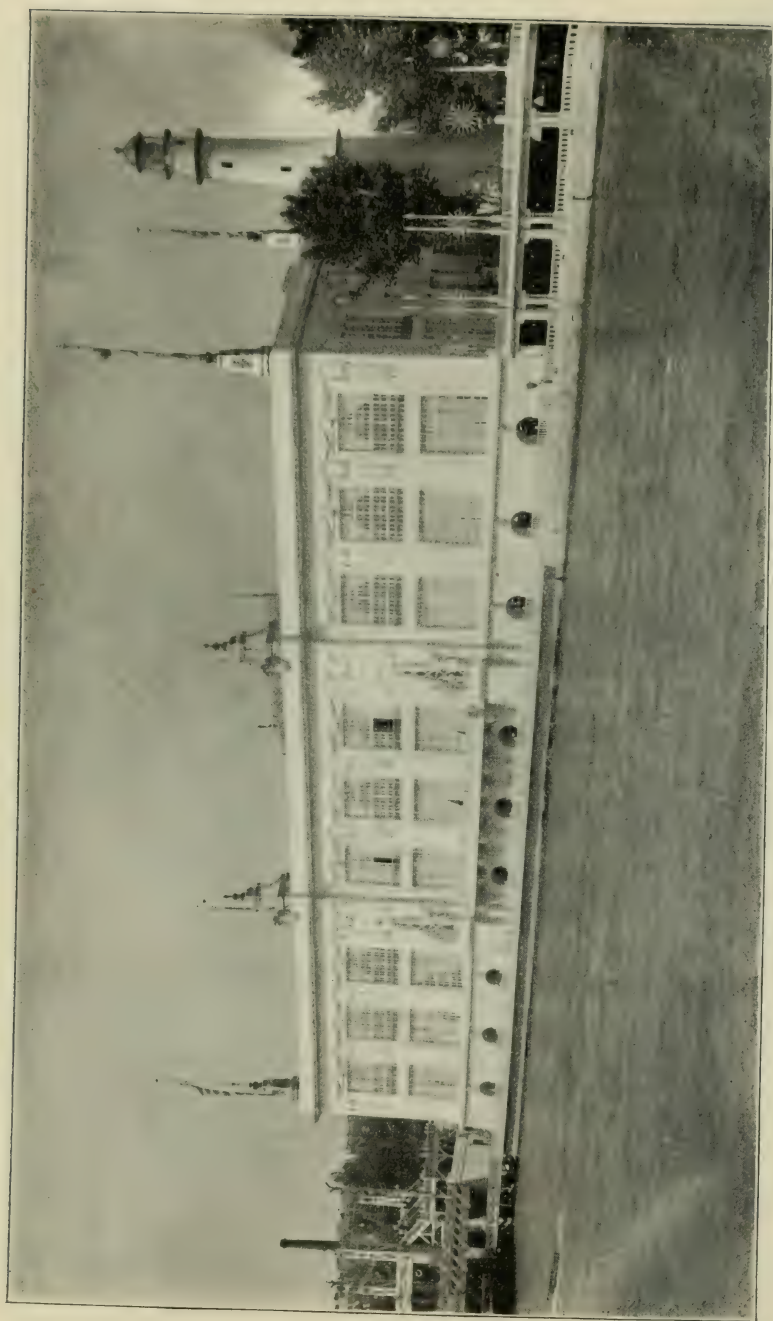
Committee on Organization, Third International Dental Congress.

In the centre of the first row is Dr. Iecaudy, Honorary President; to his right is Dr. Godon, Chairman of the Committee. At the extreme left of the second row is Dr. Michaels, and beside him is Dr. I. B. Davenport

colleges and societies present, and thanked the different bodies assembled for their contribution to the success of the meeting. Continuing, M. Godon described in a truly interesting manner the rôle of the modern dentist. He said in part: "The dentist is a little like a sentinel at the door of the human citadel; he takes an active part in its defence along with the physician and surgeon; not infrequently it is he who sounds the first alarm that the entire organism is in danger. He it is who protects the region he is charged to guard against disease, and when in a measure it is destroyed he restores it and reëstablishes it to such a degree that it becomes again active and assumes its function which was believed to have been lost. It is just the peculiar character of this intervention which creates for him a situation apart from those who devote themselves to the preservation of the human being. Therefore it can be said that Odontology is the most distinct and most special among the medical sciences." The speaker then did homage to the memory of all scientists and practitioners who have aided in the progress of dental art and medicine. He expressed a wish that future Congresses might contribute equally to the realization of new discoveries. In referring to dental services among the poor he said: "Modern dentistry cannot be reproached for refusing services to the poor. To-day the dentist, as well as the physician, is ever ready to devote his time and labor to them. Is this then due to the negligence of governments of every country, or to their ignorance of the progress of our art? If this is so, if you think it, you should speak out firmly and resolutely, to the end that the permanent committee which will survive this Congress may raise such a clamor that the men charged to govern us shall hear it, despite their absorbing occupations, and that in any case, if, after this Congress, any poor child, any laborer, any soldier shall still suffer from this carelessness it cannot be said that odontologic science has failed."

**Report of the
General Secretary.**

The report of the general secretary, Dr. Sauvez, which followed the address of M. Godon, dwelt principally with the history of the Dental Congresses of the past and present. In referring to the Congress of 1900 he showed by what guarantees its constitution had been surrounded, and expressed the desire that this organization might live under the



Palais des Congrès, Exposition, in which the Opening and Closing Sessions of the Congress took place.

name of a permanent federation, whose duty it should be to work for the general good of the profession.

After a further address of welcome by M. Gariel, and a report of the financial condition of the Congress, which showed a list of 1,150 members, brief addresses were made by the chief representatives from the various governments. Thus was the Third International Congress formally declared open.

**Meeting of the
General Assembly.
First Day.**

The Hotel des Societes Savantes, rue Serpent, was the place selected for the meetings of the general assembly and the various sections, and while the building provided rooms well adapted to the latter purpose, it would be difficult to find a place less suitable for the former. This room, ample in seating capacity, was without light except that provided artificially, and the subject of ventilation evidently did not appeal to the architect who designed it. These conditions, together with the fact that the clinics were held at two other far-distant points, combined to make the regular attendance at all the sessions a very laborious task. The first paper of the session was presented by Prof. Hesse, of Leipsic. It was written from a prosthetic standpoint and dwelt upon the advantages to be derived from a thorough understanding of the movements of the lower jaw, and described a novel method of ascertaining their movements in any given case. The two movements of the lower jaw which he regarded as essential to the function of mastication are, first, elevation; second, a lateral movement of the lower molars upon the upper molars. The fact that these two actions are present in the jaw demands, he claimed, the use of a mechanical articulator provided with the same movements.

The device suggested by Dr. Hesse, by which a very accurate reproduction of the mandibular excursion was recorded, is as follows (see Fig. A): If it is desired to find the movements of the molar teeth any one of these having a free proximal surface is selected, and a metallic band "A" of german silver, about $\frac{1}{8}$ of an inch in width, is made to encircle the four sides of the crown. The fit of this band need only be sufficient to prevent it from revolving or being otherwise displaced when slight pressure is brought upon it. Attached to the free proximal side of this band is a smaller band "B," of sufficient proportions to support a small piece of lead pencil. The record is made



Hôtel des Sociétés Savantes, in which the General Assembly and Sections of the Congress were held.

on a piece of cardboard or other suitable medium, placed and held in position against the occlusal surface of the upper molars. If it is desired to obtain the movements of the anterior teeth a similar appliance is fitted to one of the incisors.

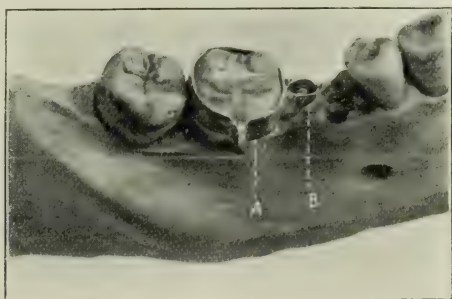


Fig. A.

**The Excess of
Papers Crowded
out the Discussion.**

In the brief discussion which followed this paper it was brought out that the system possessed no real practical value, other than a means of proving the great variety of lateral movements resident in the mandible, and this it will do in a very satisfactory manner.

This paper like nearly all others presented received little or no attention in the way of discussion, a fact much to be deplored, the disposition being to have as many scheduled essays read as the time allotted would permit, regardless of the impression created by them. But while acknowledging this error by the management of the Congress they were nevertheless deserving of praise, for their action was the result of an endeavor to avoid other complications. It was early observed that the number of essays accorded a place on the program was far in excess of the time which could possibly be devoted to their proper reading and discussion; and even with the rapid-change-artist style of procedure many papers, carefully and studiously prepared, were read only in brief synopsis.

The balance of the afternoon, so far as the general assembly was concerned, was taken up with a paper by Dr. C. S. Case, of Chicago, his subject being "Dento-facial Orthopedia." The paper, fully illustrated with well-chosen and instructive lantern

slides, was given with a desire that it might bring about an interest favoring special instruction in malformations of a dento-facial character. A plea was made for the inauguration of a definite system of instruction and study based on physiological principles of comparison, creating for this branch of dentistry an interest in observation, diagnosis and treatment far beyond that which is at present manifested. The many facial deformities resulting from the malposition of the incisor and cuspid teeth served as a text for the essay, the author claiming that in many instances the so-called protruding chin was not in reality such, but that the deformity was the result of a retruding upper jaw, and that to overcome the imperfect profile lines the chin and lower teeth should remain untouched, and the anterior third of the upper jaw and teeth forced forward to the normal position.

A reversed deformity may be present in which the upper lip is made to appear unduly prominent by a retracted chin. The portion of the face affected by malposed teeth or improperly developed jaws was shown to be small, but at the same time sufficient to alter the appearance of the entire physiognomy, it only being necessary in proof of this to observe the changes in facial expression brought about by the emotions, nearly all of which influence the oral district.

In closing, Dr. Case dwelt upon the impossibility of correct diagnosis with a view to treatment from a simple reading of plaster models; the plan of action must be decided upon only after a careful study of the case both externally and internally.

Work of the Sections.

Four o'clock found the delegates passing to and fro in search of the various sections which were announced to convene at that hour. In nearly every instance the work of the sections was inaugurated by a short address from the chairman of the section, each of whom in his wisdom congratulated the members for the progress shown in those matters in which they were especially interested.

A brief résumé of some of the more important reports and communications announced on the program for the section work of the first day follows:

"The Nutrition of Dentine under Physiological Influences" by Dr. J. Tellier, of Lyons. The author's deductions were

arrived at only after carefully examining the effect of the various physiological and pathological states upon the tissue under consideration. From the standpoint of general anatomy many kinds of dentine must be recognized, some simple others complex in character, and between these two extremes are many modifications. By some it is claimed that the primary stage of all dentine is that in which the capillaries are of sufficient size to admit of the passage of red blood-corpuscles, otherwise known as vaso-dentine, and that gradually from this we have produced the calcified structure. Not a few writers doubt this theory, but could it be proven to be true it might open up a field for the study of the nutrition of the structure in its first stage, and in this way assist to a better understanding as to the source of nourishment to the calcified dentine. In particular we would be advised as to the distribution of the early blood-vessels about the periphery of the pulp, and possibly decide the much-vexed question whether the blood-vessels take a direct part in the calcification of the ivory by conveying to the matrix the necessary lime salts. Even with the possibility of gaining much information in the aforesaid way, the writer concluded by saying that little would then be known positively in regard to the subject. He considered it a limitless field for investigation.

Before the section on Operative Dentistry the subject of a compensating amalgam was taken up. Some time ago Dr. Fenchel, of Germany, experimented in this direction by mixing together three different alloys, one of which was known to expand, another to contract, and a third to possess the property of setting very quickly. After a number of experiments covering a period of four or five years, a very satisfactory result was obtained. In working this alloy, as well as all other alloys, the author advises condensation by rotation, something after the rotation method of Dr. Herbst in the management of gold foils.

Dr. W. Booth Pearsall, of Dublin, presented before the fifth section a forcible plea for better platinum pins in porcelain teeth. This paper was prepared in the hope that it would awaken the dental practitioner to the importance of demanding from the manufacturers of porcelain teeth platinum pins free from brittleness. Reference was made to the many disastrous mishaps occasioned by this defect. Even after the greatest care has been exercised in the manipulation of porcelain teeth and facings,

care in backing, care in soldering and care in finishing, patients are continually returning with porcelains missing.

Dr. Pearsall enumerated the various supposed causes of the "dropping off" of porcelains, such as riveting, improper investment, overheating, bad solder, imperfect combustion, etc., but he considered that these probable causes were too often accepted, the real source of the trouble in very many cases being in the character of the platinum used in the pins. In support of this argument a number of experiments had been made involving all the foregoing probable causes of fracture, these being carried on in such a manner and from so many different stand-points that the results were strongly in favor of Dr. Pearsall's theory. The writer also claimed that the porcelain tooth of the present day did not begin to compare in strength to the porcelain tooth of forty or fifty years ago, the modern tooth being easily crushed with a pair of pliers held in the hand while the tooth of earlier days could only be broken by a blow from a heavy hammer.

A spectroscopic examination of some brittle platinum pins was made by Prof. Hartley, of the Royal College of Science, Dublin, his report favoring the opinion that the brittleness is not caused by any metallic contamination, but rather a non-metallic impurity, either carbon or phosphorus, either of these being readily taken up in the working over of old platinum. The extreme heat of an oxyhydrogen blow pipe was instrumental in eliminating the phosphorus and carbon, and it was then found that the quality of the platinum was greatly improved.

Before Section One Dr. T. E. Constant, of Scarborough, presented a paper on the rather obscure subject of the "Eruption of the Teeth," or the causes which are responsible for this phenomenon. This subject, important to the physiologist because it yet remains an unsolved problem, is even of more interest and practical importance to the dentist, because until we fully understand the physiological forces which bring about the eruption of the teeth we cannot hope to appreciate the etiology of dental malformations and dental irregularities. After briefly reviewing the existing theories in regard to the subject and the various published comments upon the same, the writer offered a new hypothesis. Reference was made to the theory of Thomas

Bell and others that the eruption of the teeth is due to the elongation of their roots; also to the theory of Prof. Peirce that the phenomenon is due to a mechanical force, such as might be created by the repeated closing of the jaws, this action producing a blow similar to that created when forcing a bung from a barrel by successive blows on the side of the barrel. Dr. Constant is of the opinion that the active forces at work are those engendered by the pressure of the blood, this being made possible by a particular arrangement of the young alveolar walls which form the crypts of the developing organs. The dentine papilla is responsible for the peculiar arrangement of the bony walls, superimposing itself between the forming dentine and the alveolus in a thick vascular mass, and at the same time that it is building dentine it so regulates the blood pressure that the force created in this way automatically forces the tooth to its final position in the jaw.

Other communications before the sections during the first day were "The Application of the Analyses of the Saliva to the Diagnosis of Diathetic Affections and Gingivo-Dental Changes," by M. Michaels, of Paris; "A Study of Some Microbes of Dental Caries," by J. Choquet, also of Paris, and two communications from Dr. Robert Marcus, of Frankfort, "Difficult Cutting of the Third Molar," and "Subsistence of the Third Molar, Accidents and Removal."

The Clinics.

One of the most interesting and certainly most practical features of a modern dental meeting is the hours devoted to clinical demonstrations, and while the clinics of the Third Congress were, in a measure, a stereotyped reproduction of what has taken place under similar auspices for many years past, there appeared to be sufficient interest manifested to include them as one of the successful functions of the convention. The two dental schools of Paris were selected as suitable places for holding the clinics, and, barring the fact that they were so far distant from the chief meeting place, they served the purpose very well. Demonstrations in dental ceramics and implantation appeared to be the leading feature, there being no less than eight or ten of the former and fully as many of the latter during the various clinical sessions.

The first clinic observed was one given by Dr. Hern, show-

ing a method by which the adaptation of the metallic portion of a Richmond crown might be made very perfect. After the preparation of the root, which the operator preferred to bevel beneath the gum margin on the labial side, a temporary pin and base-plate of copper was made and roughly fitted to the canal and free end of the root, the plate being slightly greater in diameter than the end of the root. These two parts were soldered together and made to serve as an impression tray, by the aid of which an accurate reproduction of the end of the root and gum margins was secured. The precaution of having the base-plate slightly larger than the end of the root, had the result of forcing the gum back by the pressure from the impression material, gutta-percha. From this impression a plaster cast was made, and the work continued in the ordinary manner, but with the advantage of a definitely defined root extremity on the cast. The clinician claimed for his method the same accuracy as that obtained when the work is performed in the mouth.

The clinics given by Dr. Herbst, of "rotation method" fame, probably attracted more attention than any operation of the first clinical session. Dr. Herbst was the envy of many younger men present, few of whom possessed the earnestness and enthusiasm so characteristic of him. The doctor's faith in his method of working gold has not lost any of its firmness; in fact, he is more devoted to the system of rotation than ever. The process through which the specially prepared gold is passed, is such that any make of gold foil may be so treated. In these demonstrations it was pointed out that all cavities should, so far as possible, be so prepared that they become a simple cavity, in proximal cavities using the matrix for this purpose. The fundamental principle after thus arranging the cavity is that which governed the old method of working soft gold, first filling the sides of the cavity and forcing the gold in this direction by means of a heavy wedge-shaped instrument, driven into the center of the mass, afterward filling this central space and again forcing the gold in a lateral direction.

In addition to his clinics Dr. Herbst exhibited a table full of teeth, ivory blocks, ivory and bone figures, etc., all of which were highly ornamented by gold-foil pluggings. To very many this exhibit did not make a very favorable impression, having little or no practical value, and only representing the results of much wasted energy; it would have been better omitted.

Other clinics of the first session were, "Asepsis in Root Treatment," by Dr. Schreim; "A Simple Obturator;" "Special Impression Methods," by Dr. Volger, and a number of demonstrations covering the management of cements, all of which will be included in a later communication.

**Implantation
Methods.**

One clinic that should be reported before it passes from memory, as it should forever do, was given by Dr. V. Guerini, of Naples. The doctor is an enthusiast on Im-

plantation, claiming everything for the operation, and unwilling to admit a possible dark side. To-day countless numbers of Dr. Guerini's converts are walking the streets of Naples, and many have passed beyond this "vale of tears," so old and well tried is this operation with him. The details of this clinic were as follows: The patient, the second one to be operated upon, a robust man from the local fire department, was approached by the operator, who, in his zeal to extract a cuspid root, failed to remove from his hands anything that might have remained from the previous operation. The root being satisfactorily removed, several cuspid teeth were taken from the coat pocket and one by one tried in the socket for the purpose of selection. Through the kindness of Dr. Savinova, who acted as interpreter, the question was asked: "How old are the teeth from which you are making the selection?" "About three or four years old." As the operation progressed other inquiries were submitted. "Have the pulps been removed and the canal filled?" "Not yet, but I am going to do so," and, suiting the action to the word, a rubber file, which had outlived its usefulness in the laboratory, was brought into service, and about an eighth of an inch of the root apex removed. The filing away of this much of the root was, in the opinion of the operator, sufficient for the removal of such portions of the pulp as remained, and in a moment this was dislodged. With the fingers of the right hand, the same hand and same fingers used on patient No. 1, a body of cement was worked up, and a small portion of it puttied into the canal. "Do you make any account of the peridental membrane; does its presence favor or retard the desired attachment to the bone?" "It must be removed." And so it was, the same file serving in this capacity. After this ideal preparation of the tooth to be implanted, it was passed through a solution of bi-

chloride, and then forcibly hammered to its final (?) resting-place. The utter disregard for asepsis and of the vital principles on which the success of such an operation is usually supposed to depend promoted in the spectators a sense of pity for the patient, and many comments were made regarding his probable fate, but, contrary to all expectations, he made his appearance before a subsequent session, having experienced no discomfort, and happy in the possession of a new tooth.



SHOULD THE MEDICAL UNDERGRADUATE BE INSTRUCTED IN THE PRINCIPLES OF DENTISTRY ?*

By M. L. Rhein, M.D., D.D.S.

It is, at the outset, necessary that the term "principles of dentistry," as used in this paper, should be specifically defined. Such a definition is required, both because there should be a definite understanding of the points that the discussion should embrace, and because, mindful of the fact that the path of the medical student already bristles with subjects, we should be loth to add an unnecessary amount of work to his daily routine. A requisite knowledge of the shape and uses of the various dental instruments cannot be expected of the general practitioner; indeed, all the variations in dental technique as applied both to laboratory and operating-room are distinctly beyond the scope of dental principles, in their relations to general medical education.

The question at issue then narrows itself down to the advisability of the medical undergraduate being acquainted with principles of dentistry as they bear on general medicine. That the general practitioner should appreciate fully the process of dentition, in its relation both to local and constitutional results, cannot be denied. Equally as important is it that he should be able to distinguish an incipient alveolar abscess from *tic-doloureux*, simple caries from caries complicated by exposure of the pulp, or the inflammation attending the eruption of a third molar from that caused by follicular tonsillitis. The medical undergraduate should be taught that no tooth need of necessity be lost through the ravages of caries; to judge of the efficacy of remedying these carious defects, he must of necessity be able to appreciate whether or not a tooth cavity has been properly filled. He should be taught to know that more teeth are lost through disease of the peridental membrane than through all other pathologic conditions of the mouth combined, and that prophylactic measures tending to preserve this membrane are of vital importance. He should be made cognizant of the intimate relationship existing between the general nutrition and proper mastication, so as to realize when artificial teeth are required, and if supplied, whether they are properly inserted. Such knowledge implies a proper understanding of the normal occlu-

* Presented in a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

sion of the upper and lower teeth; it also leads to the appreciation of the value of orthodontia as a corrective for malocclusion.

A proper appreciation of the foregoing facts necessitates that medical undergraduates be taught dental embryology, anatomy, histology, and pathology, in order that these principles should form a foundation for a correct clinical observation of oral conditions. This will enable the general practitioner to serve best both his own interests and the interests of his patients, and at the same time tend to elevate the standing of the dental specialty.

No more opportune time than the present could have been selected for this discussion. For through the efforts of our medical schools, and of our State Boards of Medical Examiners, the standard of medical education is advancing yearly. Moreover, this is an era of curriculum extension in all of our medical schools. With the advent of each scholastic term, there is either an extension in the number of subjects taught or a marked improvement in the methods of teaching them. Physiologic chemistry, bacteriology, orthopedics, and the other limited specialties are yearly receiving more attention, and very rightly so. Yet, this era of educational progress is utterly ignoring the importance that the principles of dentistry should play in the education of all medical undergraduates. Dental instruction not only is not represented by any individual chair in any of our large Eastern medical schools, but the teaching of dental principles is not embraced in any of the allied chairs of medical instruction. A medical education which neglects to train the undergraduate in the principles of stomatology is deplorably deficient. Thinking thus, we desire to show not the *modus operandi* by which the medical curriculum should be recast or altered, but rather the disadvantages resulting from the present deficiency in medical training and the advantages to be gained by supplying this deficiency.

Such oversight in the method of medical instruction results in creating a disposition on the part of the general practitioner, not only to underestimate the importance of the principles of dentistry, but also to consider the dentist rather as an aid to comfort than as an active and important element in preserving the human economy. The evil results of the medical undergraduate's lack of knowledge of dental principles are all-pervading. On the staff of most of our hospitals it is rare to find the name of a dental specialist; yet only obstinate bigotry may deny the frequent occasions arising in a hospital service that distinctly demand dental treatment.

The poor results that have attended the long-continued agitation for dental representation in the army service will illustrate the poor esteem in which dentists are held by their medical colleagues. All this, too, despite the fact that the recent war

demonstrated beyond a doubt that lack of official attention not only worked havoc among the soldiers, but also required the establishment of the sporadic and so-called "dental tents," where emergency dental work was performed by volunteers, taken mostly from the ranks.

Not less productive of evil results is the lack of dental representation in our naval service; for can a more disagreeable exigency be conceived than an intractable toothache occurring in a naval cadet on a cruise miles from home—a simple case for a qualified dentist to handle, and yet one which at present usually results in the extraction of the offending tooth, and the conversion of a possible future naval officer into an incipient cripple? And all this, because our medical confrères have failed to appreciate the importance of dental principles.

That ignorance of the principles of stomatology characterizes the general medical practitioner cannot be denied; and as a result of this lack of knowledge his opportunities are greatly handicapped, owing to his inability to appreciate the diagnostic, therapeutic, and prognostic aids afforded by the clinical appearances found in the oral cavity.

As regards the diagnostic aid offered by the mouth, a thorough appreciation of normal appearances is both presupposed and necessary, in order to enable the practitioner to recognize the significance of incipient pathologic changes, symptomatic of systemic disease. A red, dry, glazed tongue, with characteristically swollen, hemorrhagic gingivæ, and rapid caries of the teeth are frequently the only signs of an incipient diabetes. Likewise, the characteristic whipcord-like tumefaction of the gum, over the palatal surface of the teeth, is one of the earliest signs of chronic Bright's disease. Similarly in gout, one of the earliest manifestations is the hard, smooth, blackish incrustations of salts found on the roots of the teeth. The peculiar linear discoloration of the gums, found as an accompaniment of metallic intoxication, renders the diagnosis of these sometimes obscure cases both easy and assured. In infantile scorbutus there is no sign of more diagnostic value than the spongy, bleeding, hypertrophied gums, accompanied by an extensive resolution of the infantile tooth structure. Finally, it may be said with confidence, that study and observation of the oral cavity will yield many more invaluable diagnostic points to the seekers of them, and thereby serve to lighten the task of the well-grounded general practitioner.

As regards the aid in therapeutics afforded the general practitioner by the recognition of oral malconditions, it is only necessary to recall the pertinent relationship existing between the many neuroses and caries of the teeth. A few citations will best illustrate this fact: Remedying a carious and irritable tooth has often succeeded in abating the intractable vomiting of preg-

nancy; in the treatment of chorea, attention directed to carious teeth, considered as centers of reflex irritation, has often lessened the severity of the nervous affection. And finally, how well we know the numerous forms of neuralgia that baffle medical skill until the dentist discovers an exposed pulp and removes it.

As regards the influence of oral conditions on the prognosis of systemic disturbances, we have here a field whose full value is unknown not only to the general practitioner, but also to many dentists. The minute differences in local appearances cannot fail to suggest to the careful observer a proportionate idea of the systemic disturbance, and thus these appearances lead to a much more exact prognosis. At a recent meeting of the Odontological Society of New York, I recited the history of a case of miliary pulmonary tuberculosis, in which, with no clinical knowledge of the case, I was yet able to give an absolutely fatal prognosis, based on conditions found in the mouth, and verified later, unfortunately, by the course of the disease.

Thus far we have attempted to outline those principles of dentistry, the knowledge of which would be of undoubted value to the general practitioner of medicine, and which, therefore, he should learn as a medical student. Not merely from the standpoint of the general practitioner of medicine, however, should this question interest us. As dentists, it behooves us not to lose sight of the fact that the education of medical undergraduates in dental principles would serve a double utility. There would result an incalculable gain to the medical man, it is true, but it is equally undeniable that the dental profession would also greatly profit by such an educational advancement. The newly-developed ability of the medical man to recognize early pathologic conditions of the teeth and mouth would result in more thoroughgoing prophylaxis, and in the earlier application of treatment. Even more than this, the properly educated medical practitioner would recognize innumerable cases of important diseases of the mouth, that would otherwise run their insidious course unnoticed and untreated. Granted that early recognition and the early application of treatment were in force, the task of the dental surgeon would thereby be rendered not only less arduous and more satisfactory to himself, but also far less unpleasant to his patients.

Nor is this the only benefit that the dentist would derive from such a change in the medical undergraduate's curriculum. I vouchsafe that there is known to all the members present to-day, that class of dentists, who, like the proverbially stubborn bird, can work well, but refuse to work well. Good dental work is distinctly time-consuming. There are any number of men eminently fitted to do excellent dental work, and who indeed do accomplish excellent results, until they have established a fairly

large clientele. Then, suddenly discovering that their rewards are seemingly incommensurate with their labor, and realizing that the discrepancy is due to the time consumed in doing proper work, they sacrifice their ideals. Such a sacrifice is made, largely because the dentist realizes that he is the final judge of his own work. He is fully aware of the general practitioner's inability to pass judgment as to whether his patients are receiving intelligent or mediocre treatment. Armed with such knowledge, the unscrupulous dentist is able to continue the nefarious practice of working against time. The claim that the patient's appreciation of proper work serves as a check against such undesirable practices, is not tenable; for the average patient does not value a piece of work properly. Appreciation of dental work is in a large measure regulated by the confidence reposed in the dentist by the patient; and an incompetent politic man, often succeeds better in inspiring his patients with confidence in him than does an honest, qualified practitioner.

I have compared the above class of unscrupulous dentists to the bird that can but will not sing. The analogy may be carried further. The little bird, you know, was made to sing, and likewise the capable dentist can be made to do proper work. Let him realize that Dr. A., who sends him many patients, has graduated from a medical school where dental principles receive merited recognition, and that he therefore values good dental work, and discovers faulty results; and the dentist will cease to work against time, and attempt rather to maintain the professional opinion and favor of Dr. A. In this way, then, also, the education of the medical undergraduate in dental principles will serve to bring about a much needed elevation in the standard of the dental specialty.

Still another way remains, by which an addition to the burden of the medical student's work would redound to the well-being of both dentist and general practitioner. I refer now to the cultivation of a stronger bond of sympathy between the two branches of practice. Educate the medical man properly, and he will learn to appreciate the dentist at his true worth. The value of the dentist's advice and opinion will be on a par with the advice offered by the ophthalmologist, otologist, or laryngologist. He will be consulted by the general surgeon before a plastic or prosthetic operation is done on the jaws or mouth, and his ideas will be sought by the general practitioner attempting to treat some obscure lesion of the alimentary tract which might have some connection with oral disease.

Valuable as such a change in medical education would be, and productive of unlimited good, it is nevertheless opposed on various grounds, and for numerous reasons. A discussion of the subject, therefore, would be lacking in completeness did it not consider these objections and show the tenuous foundations on which they rest.

First of all, we meet the statement that the medical student, of all other professional students, labors most. His days are taken up with practical work, and his nights with study, and it would therefore be impossible for him to shoulder an additional burden of work. That the medical undergraduate's lot is an arduous one, none of us can gainsay, yet the scope of his work never has and never should be regulated, either by his capabilities for strenuous labor or by the amount of time requisite for him to complete his course of study. It must not be imagined that the additional amount of study would be excessive; for it is not the mastery of dental technique that is asked of the medical undergraduate, but merely that he acquaint himself with those oral conditions having a bearing on systemic disease. The problem before him is solvable, even if it be difficult. His utility to the community depends on his ability to recognize and alleviate disease; and if a knowledge of dental principles will aid him, as it undoubtedly will, this knowledge must be acquired, at whatever cost of additional expenditure of time and labor involved.

This objection disposed of, what can be said to the often repeated statement that the testimony afforded by the mouth is at best of only slight corroborative aid to diagnosis? Such a statement is truly absurd. The philosopher's stone was never more assiduously sought than are aids to medical diagnosis. If conditions of the mouth will serve to guide a practitioner properly even in a small number of cases, the knowledge of these should be as assiduously cultivated as are the physical signs of the chest and abdomen. In a very recent brochure on pyorrhea alveolaris, Fitzgerald, of London, calls attention to the frequency with which diseases of the gum cause antral empyema, chronic gastritis, phlegmonous gastritis, systemic toxemia, and other infectious diseases, whose early recognition and scientific treatment cannot be divorced from the absolute necessity of recognizing and appreciating the primary focus of disease about the gums. There are those who are in honest accord with us in all that has so far been said, but who believe that since there is no lack of good dental practitioners, the medical man can always refer his cases to his dental confrères, and thus conscientiously avoid the disagreeable duty of himself mastering the principles of dentistry. Such a statement, however, is one of the strongest arguments in favor of our proposition. In the first place, the medical practitioner of to-day is incapable of judging whether or not a particular man is an efficient dentist, and again he is oftentimes equally capable of discovering early pathologic conditions due to oral disease, and requiring simple dental treatment, in order to effect a cure. We do not deny the existence of innumerable dentists capable of aiding the general practitioner, but we do affirm the general practitioner's lack of proper appreciation of the scope of these dentists and their work in remedying systemic disease.

In conclusion, let it be noted that the mouth and teeth are as much an integral part of the human economy as are the eyes, ears, larynx, or genito-urinary apparatus. The interdependence of systemic diseases and of diseases of the oral cavity is as close as that between the body and any other of the functioning organs, and therefore the general practitioner is in duty bound to acquaint himself with the appearances of the normal and abnormal oral cavity. The seemingly complete separation of stomatology from general practice, in existence in this country to-day is a result of the failure of medical men of sixty years ago to appreciate the importance of dental principles. What we are striving for to-day is the closure of this gap, and the only feasible way to accomplish it is to acquaint the medical undergraduate with the important bearing that a study of the mouth has on the application of the general principles of medicine. Our thesis is to emphasize the fact that in knowledge lies power, and that the resulting power is always commensurate with the comprehensiveness of the knowledge. That this knowledge need not be all-embracing, we have tried to point out by distinctly limiting the term dental principles; but that it would be of unqualified value, we have also tried to show by pointing out the advantages to be gained from acquiring such knowledge: There would result the necessary feeling of sympathy between the dentist and general practitioner; the general practitioner's work would be of a higher standard, the dentist's work would be more satisfactory, and, lastly and most important, the patient would be better served. These results are truly to be hoped for. Although it is true that the medical profession contains men who, by a self-imposed duty of study and observation, after graduation, have rendered themselves capable of recognizing and properly appreciating diseased conditions of the mouth, yet such men form a glittering minority. We firmly believe that the only way of increasing the number of this conscientious minority is by instructing the medical undergraduate in those principles of stomatology which will make him a truly broad general practitioner.

THE HANDWRITING ON THE WALL: WHAT DOES IT PORTRAY?*

By A. E. Baldwin, LL.B., M.D., D.D.S.

The founders of American dentistry had high professional ideals. The methods of practice at their command were the most crude and almost if not wholly mechanical. They deemed the specialty a part of the healing art, and hence a department of the science of medicine. Such profound regard had early practitioners of dentistry for their calling that in almost every instance before or after they had begun practice they took up the study of general medicine. They were capable of practicing, and did practice general medicine. The illustrious Haydon, Jeffries and many others were graduates of the best American and foreign medical colleges. Later, from 1810 to 1840—the latter date being that of the establishment of the Baltimore College of Dental Surgery—a long list of medically educated men gave honor and dignity to their special calling. These men were the peers of any in the practice of medicine. I doubt if there has ever been a period in our history when such a large percentage of cultured gentlemen graced the dental specialty. They were men of dignity and standing, men of influence, holding the respect of the people in the community in which they lived.

The foundation of a dental college in 1840 and the creation of a degree divorcing dentistry from medicine, marks the period of the narrowing of our calling. No matter what the views of others may be, the motto of our country—"together we stand, divided we fall"—is as applicable to dentistry as to national affairs. The dental student, and too often his teacher, have forsaken the broad principles of medicine and have dwarfed the teaching of physiology, pathology, and treatment of the human tooth into mere side issues in comparison with the instruction in extraction, in insertion of dentures, and in crown and bridge work. A single attendance on a dental society and slight perusal of dental journals suffice to show the exceedingly narrow lines into which the profession has drifted. Scarcely a dental journal is issued in which the handwriting is not noticed upon the wall. Indeed, outside of filling cavities and roots of teeth, and other mechanical operations, the profession is almost at sea. Multitudes of instances might be quoted from current dental literature, but the few following will suffice:

A paper was read recently before the New York Institute of Stomatology, on "Pyorrhea Alveolaris from a Bacteriological Standpoint, with a Report of Some Investigations and Re-

* Presented in a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

marks on the Treatment." Experiments familiar to mere tyros in bacteriology were cited, and the following concerning rabbits that were infected: "All were made sick, some were sicker than others, an abscess formed in one." The bacteriologic ignorance in the omission of Koch's law should have prevented its serious consideration by a medical society.

A professor in a Western school, commenting on a recent article—"Interstitial Gingivitis due to Autointoxication"*—remarks: "I cannot agree with the author as to the folly of local treatment, the cases have grown to large proportions in my hands, where local treatment has effected a cure, in fact, I feel so sure of this, that I cannot reconcile my experience with his positive conclusions." Can it be seriously assumed that dentistry is so far ahead of the mother profession as to cure constitutional diseases by local treatment?

In August, 1894, in a paper read at the meeting of the American Dental Association, held at Old Point Comfort, Va., the following method of classification of the different forms of so-called pyorrhea alveolaris was given: "This classification is made by simply prefixing to pyorrhea an adjective stating the name of the disease which is causing the pathological symptoms in the oral cavity as 'gouty pyorrhea,' 'diabetic pyorrhea,' etc. It is unnecessary to enumerate the subdivisions that might be listed, as they embrace all causes that may disarrange nutrition." With all the admittedly valuable data of the paper, its author ignored the simple fact that bacterial infection implied a suitable culture-medium only. So far as the established infection present in pyorrhea was concerned, that culture-medium might or might not be resultant on any autointoxication due to these diseases. For purposes of clinical study and treatment the pre-pyorrhic stages were all-important. The complexity of the proposed classification would destroy its value for clinical purposes.

In a certain city, dentists were urged to form a society to furnish money to enable a brother dentist to make scientific researches in bacteriology in relation to so-called pyorrhea alveolaris. This dentist was an amateur in microscopy, who knew almost nothing as to what had already been done in dental bacteriology—the same was true of those who were to furnish the funds—and nearly as little as to bacteriologic laws. He was a man of fair education, but it would have required years to have fitted him to undertake expert work. Would a business man who required an accurate analysis of a certain spring water or compound of drugs or adulterated food employ an individual who had yet to be trained as an analyst? Fortunately for those who were to furnish the money, and who expected results, the plan was dropped. This scheme illustrates excellently the un-

* Internat. Dent. Jour., Feb., 1900.

scientific conception of dentistry held by many well-meaning men in the profession.

Under the heading, "Etiology of Pyorrhea Alveolaris,"* an attempt is made to determine the etiology of a disease by the examination of deposits about the roots of the teeth, made in three cases by a chemical expert and "six or eight by Professor ——— in my presence, the result obtained corresponding to those of Professor ———." How much weight would such experiments have in a scientific body?

Some years ago the Faculties Association formed a species of trust and appointed professors to write text-books to be used in the colleges. These honors were parcelled at random on stock-holding principles, regardless of ability or qualification. As might have been expected, the books published, except in one or two instances, are a disgrace alike to author and the professor. Almost all are uncritical compends of a limited field of dental literature. A notable disgrace in this particular is a puerile work on "Orthodontia." Here is a work without a single original idea, a hazy compilation of other men's thoughts reduced to the level of the teacher's capacity and the requirements of the students. The author's mind proved equal to the task of comprehending works already extant and held in high esteem for their scientific basis. Yet this man was supposed to teach science.

A professor on theory and practice in a dental school, recently speaking of so-called pyorrhea alveolaris, said: "I would advise you to read the views of both Drs. Rhein and Talbot, and choose for yourself which theory is correct." This reminds one of the difficulty Lord Timothy Dexter had on punctuation. Lord Timothy gained a fortune by sending warming pans to Africa. He wrote a book, but gave up the problem of punctuation in despair, placing at its end all works of punctuation, so that the reader might "pepper and salt to suit himself." The task of scientific analysis was similarly too much for our professor.

In a discussion of prothesis and orthodontia, before the Columbia Dental College, another professor remarked: "I am particularly interested in the correction of irregularities of the teeth, and I find that the etiology has very little to do with the correction. I find I can correct almost any case of irregularity regardless of the cause." Can it be that dental science has reached such a stage of perfection that disease can be eradicated without the knowledge of cause? This seems strange, when it is remembered that the entire trend of medical thought and energy is directed toward the etiology of disease.

In the discussion of a paper on "Degeneracy in its Relation to Deformities of the Jaws and Irregularities of the Teeth," read

* Ibid., January, 1894.

before the Odontographic Society, another professor said: "The subject is an interesting one, but it is rather one of to-morrow than of to-day. Our knowledge of these facts is not sufficiently advanced to form positive data on which to base certain opinions, and I am sure that the subject will not, under such circumstances, appeal to the members present as something, perhaps, of another thing would."

The first paper on the subject of irregularities of the teeth was published in 1794. Is it possible that the profession has made no progress in the study of the etiology of such irregularities during the past century? From such remarks by a teacher in two dental colleges, and from the further fact that there was no further discussion of the subject, the inference seems plain that the profession knows nothing about one of the most important questions in its specialty.

Discussing Dr. Frederick Peterson's paper, read before the New York Odontological Society, on "Deformities of the Hard Palates in Degenerates," one dentist remarked: "I feel just a little foolish to-night, because I have brought with me a case full of models that seem to me to be rather out of place. I labored under a misconception of the subject. I understood that it was to be a discussion on cleft palate in its relation to degeneracy, and when I was asked by the chairman of the executive committee to bring some models with me, I agreed to do so. * * There is one point that I would now make in connection with the models, and that is, whilst they are exceedingly abnormal mouths, they are casts from normal people. The patients are not degenerates in any sense of the word, so far as I know."* This is, as the newspapers say, very important if true, since congenital cleft palates are generally regarded as most marked expressions of degeneracy.

The following reply was sent to Dr. Vernon Hall in response to a letter as to the use of his "Chemistry and Metallurgy Applied to Dentistry:"

"*Dear Sir:*—Pardon us for not replying to your favor of recent date, but we have been so exceedingly busy with the college rush. We regret now to say that your work on Metallurgy did not meet with very much approval, for the reason that the professors here seem to be 'stuck' on Hogden, of San Francisco, Cal., and claim that there is more chemistry than is practical for students' use in your book; and we were very much disappointed at the reception your work received."

A bill is now before Congress for the appointment of dentists in the army and navy. A mail report from General Otis contains an alarming statement regarding the condition of the teeth and jaws of the troops in the Philippines. The case of

* *Ibid.*, December, 1895, page 755.

Walter Fitzgerald, Company C, 28th Infantry, formerly of the Montana Volunteers, is cited: "This young man, 23 years old, has been in the Philippines for a year and seven months. He was one of the first volunteers to reach Manila after Dewey's victory. Nineteen months in the tropics, subsisting on the rations of the army, have resulted in the loss of nearly every tooth in his mouth. It is not the climate alone which is responsible. It is that which undermines the roots of the teeth, while the tropical fever, which has afflicted nearly every volunteer now in the islands, affects the gums of the mouth and loosens the teeth. Grinding on army biscuits and canned beef doesn't naturally improve the teeth. In the case of Fitzgerald, the teeth did not decay, but they dropped out one by one. This is a common ailment in the Philippines, and the cause generally is the fever. The hospital surgeons are able to relieve the condition of the patient to some extent, but constant care after the fever is necessary to save the teeth. If this bill should pass and become a law, how many dentists are there who are capable of coping with such conditions as mentioned above? To be sure, the dentist might look wise and plug the cavities in these teeth.

An editorial review of a work on "Interstitial Gingivitis" claims: "To say that gingivitis in the dog and sheep resembles, or is analogous, to the lesions found in man, calls for a very broad imagination. * * * The environments of man are so totally different from those of street or pound dogs or domesticated sheep or guinea-pigs that we must consider this otherwise excellent work as failing to throw much light on the etiology or pathology of interstitial gingivitis." This review speaks for itself. In the light of the great advance in medicine through biologic experiments during the past two decades, such an editorial seems an emanation from a Rip Van Winkle, who had remained asleep from the days of fetichism, suddenly to awaken in the closing years of the nineteenth century, and to insist that not he but the world had been asleep.

Many more illustrations could be added, as the dental journals of the past year are replete with examples of such ignorance; still a sufficient number have been cited to demonstrate the need of a broader education. Until this is acquired, no advancement can be made along the lines of original research, and no progress is possible. The handwriting upon the wall marks the standard of the profession.

IS A MEDICAL EDUCATION A NECESSARY QUALIFICATION FOR DENTAL PRACTICE?*

Alice M. Steeves, D.D.S., Chicago.

In this age of strenuous activity and rapid advancement, when personal gain often seems to be the sole object of professional work, the necessity for a medical education in dental practice may be denied by the narrow-minded in either profession.

The development of specialties in recent years has created a spirit of commercialism in which completeness of education is neglected, and only those studies acquired that can be quickly turned to money. In no specialty has this tendency been more marked than in dentistry.

If concentration of energy and study makes the successful specialist on all medical lines, may not the dentist claim an added opportunity for even greater ability because of the mechanical skill required in his work?

The way upward in dentistry, not unlike all other professional paths of to-day, through cheap competition and unethical practice, is hard enough at best and requires the use of every possible resource.

Dental science originated in the medical profession and, although not permitted to become a part of the mother profession in the beginning, it is recognized to-day as a specialty of medicine, and justly so, for there is no more reason for making a distinct profession of dentistry than of surgery, neurology or ophthalmology.

On the one hand, it is claimed that dental success consists merely in the production of a skilful result from a mechanical standpoint, while on the other we hold that a dental education has the broadest possible significance and includes a knowledge of the structure and functions of organs, not only of the mouth but of the whole organism, and of the principles of disease as well.

The dentist should receive the same preliminary education as the medical specialist, because insofar as dentistry is more than a mechanical art, it depends on the same sources and requires the same studies as all other departments of medicine and surgery. The principles of disease are the same, whether they occur in the internal organs, the extremities or the teeth. A knowledge of these elementary principles in one set of organs requires the same studies as that of any other group of organs in the body. The necessity for more complete pathologic train-

* Presented in a Symposium on Dental Education, before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

ing becomes apparent whenever the dentist attempts to treat diseased conditions of the mouth.

It is not enough to remove or advise the removal of the cause of the disease, unless we can make a logical diagnosis as to the cause and be able to predict the probable outcome of its operation. The surgical principles do not differ from those in other surgical practice. The laws of aseptic and antiseptic treatment are just as applicable to dentistry as to amputation, because the inflammation which produces an alveolar abscess is the same process as that which follows any septic infection.

The dependence of one set of conditions on other conditions at distant parts of the body must be recognized. One of the simplest, yet greatest examples is the perfect assimilation of food, possible only through normal conditions in the mouth.

There is a common interest between the dentist and other medical specialists. The dentist must be familiar with the structure and function of organs other than those of the mouth, while the medical man should be able to recognize the presence of diseased conditions in the mouth and their relation to morbid changes elsewhere.

Medical and dental students should be educated in the same schools, because the fundamental studies which each must pursue are the same, and should be required to take different clinical and laboratory instruction in their separate specialties, only in the advanced courses.

By this combination we would secure the advantages of larger institutions, more fully equipped laboratories, better clinical facilities, and instructions by the best specialists in each department, while the broader scientific atmosphere would create a healthful competition between the students of both branches. If the position of the dental specialist shall equal in dignity and importance the foremost in medicine, it will be necessary to educate and train the dentist more thoroughly in the fundamental principles of medical and surgical science.

The advantages of united work in this Association are many, and he who will grow must avail himself of these meetings. The obstetrician's paper will help us to care for the mother during the period of gestation, that of the neurologist will aid in the management of neurasthenic and nervous patients, which is so often a difficult problem, while the surgeon's paper will assist us because we are surgeons.

I have given but few of the many reasons why the physician and the dentist belong to the same great profession, must work with the same methods, study the same principles; and the dental student may well spend one-half or three-fifths of his time in securing a thorough ground-work in the laws of the medical profession.

SYMPOSIUM ON DENTAL EDUCATION.*

DISCUSSION.

Dr. G. V. I. BROWN. Milwaukee.—I am sorry Dr. Hill is not present to take part in the discussion of this subject, as his paper is not a set of phrases put together for the day or the time, but is based upon his own practice. Dr. Hill, a physician, is better capable of discussing the pathologic conditions, local and general, that have relations in affections of the mouth than almost any dentist that I know. He sends a great many patients to me; almost every case is diagnosed, and very rarely, if ever, do I find reason to change the diagnosis.

Dr. CRYER.—Being only a visitor to this Section, and not having heard all the papers read upon the subject, there is but one point on which I can speak. Throughout the reading and discussion of papers in dental meetings there seems to be a tendency for the dental profession to find fault with the medical profession for their treatment of the dentists. In my association, as a dentist, with the medical profession, and when I attend their medical meetings, I am treated with the utmost courtesy; when the dental profession is spoken of it is with the greatest respect, and it is constantly recognized according to its worth.

It is claimed by your speakers here to-day that dentists are not recognized by the medical profession. Do we recognize the medical profession as we should? We constantly claim that dentistry is a specialty of medicine, as is ophthalmology or laryngology; yet, in Rhode Island, a graduate of the University of Pennsylvania in medicine and dentistry was arrested and taken into court through the instigation of the dental profession of that State, for practicing dentistry without a license. He had taken out the license to practice medicine, and claimed that he had the right to also practice dentistry, on account of the medical degree and the license to practice medicine, just as the ophthalmologist and the laryngologist would have a right to practice their specialties. The court decided in his favor, however, giving him the right to practice dentistry. If the dental laws of Pennsylvania could be enforced, they would compel a medical man to attend a dental college, and pass an examination with the State Board, before he would be permitted to practice dentistry; he might treat pulpitis, but would not be allowed to fill a tooth. In fact, I do not know where the line would be drawn. Many of the State dental laws throughout

* This discussion is on papers read before the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association. See the BRIEF, August, 1900, page 443 *et seq.*; September, 1900, page 506 *et seq.*, and current number.

the United States in themselves acknowledge that dentistry is not a specialty of medicine, and still these laws were usually asked to be passed by dental societies.

DR. J. L. WILLIAMS, Boston.—I have a full report of the case in Rhode Island, that Dr. Cryer has mentioned. The judge quoted some dozen precedents and the laws of certain States to uphold the decision which he made.

The papers which we have heard all tend to prove the need of a sound medical education as the foundation of a dental practice. This is not new, but rather a reversion to original conditions. In 1844, when I wanted to study dentistry, I found no reputable dentist who would accept me as a student, unless I would first study medicine, and I therefore spent three years getting a medical degree before entering on the study of dentistry. This shows that dentistry, even at that time, was considered by many as a specialty of medicine, and that it was recognized that a dentist should be grounded in the general principles of medicine, and know how to apply them to his specialty.

In 1876 the American Academy of Dental Science passed the following set of resolutions upon this subject:

WHEREAS, Dentistry is a specialty of the science of medicine,

Resolved, That a thorough medical education is essential to the most successful practice of it;

Resolved, That we deem it expedient and for the best interests of the practice of dentistry, that existing medical schools enlarge their courses of instruction so as to include efficient instruction in the specialty of dentistry, in order that it may be placed on an equality with other specialties of medicine.

In 1890, when I was chairman of this Section, in my opening address, I used these words: "In earlier years there were only a few qualified practitioners who devoted their skill to the treatment of the oral cavity, while the larger number gave their attention to the teeth, and so the specialty was called dentistry, but at this day, when the knowledge of the principles of medicine and surgery is more general than formerly, and more commonly made available in the treatment of the oral cavity, the term 'dentistry' seems to be too limited, and I suggest the use of the word 'oristry' instead." Stomatology has since then been adopted as a better name for the specialty whose field is the mouth. I am glad that the whirligig of time is bringing around the idea that the knowledge of all the basal principles of a medical education is necessary for a dentist. It does not so much matter what the title is that distinguishes the profession, so long as the members have the knowledge necessary, but it would be better for all to have the medical degree as a guarantee of the possession of that knowledge. Many of the

members of the dental profession already have it, yet many excellent dentists have only the single degree of D. D. S. It is true, however, that no specialty of medicine can be separated from general medicine, for the body is one, and all parts are sympathetic with all others, and without knowledge of all the diseases, one cannot be properly treated.

JAS. McMANUS, Hartford, Conn.—I have been interested in all the papers, especially the one read by Dr. Davis. I had the pleasure, in 1865, of hearing Dr. Davis read a paper on the same subject in Chicago. As the paper was read yesterday containing extracts from the other, pleasant recollections of the enjoyable time on the occasion of the former paper came up in my mind and the cordial welcome and glad hand which Dr. Davis extended to every dentist on that occasion. I think Dr. Davis raised the proper sentiment at that time, and I have lived up to it ever since. Men active in educational work in the profession of dentistry, have been working as well as they could, up to the line laid out by Dr. Davis, and in my opinion there is no college in the country where a student cannot get a thoroughly good education if he will. The trouble has not been with the colleges, so much as with the students; a great many have attended dental colleges without the necessary preparation; but that is a question of the past, the future seems to be quite clear. The student now knows that he has to face a very strict examination, not only in his own college, but also after he leaves college, at the hands of the dental examiners.

This leads me to speak of the Rhode Island case. There was no reason why that matter should get into the snarl that it did, had dental examiners not treated it in a narrow, unreasonable way. I think that while I am justified in saying that the teachers in dental schools are all earnest, honest, conscientious men, working for the best interest of their students, the examiners on the other hand have sometimes not been quite so honest, and they have been too desirous sometimes to show their power and authority. I think too much has been said about the need of education in dentistry. The colleges are improving as fast as they can, and will do their work thoroughly. In practice, however, it must be dentistry first and oral surgery next. Oral surgery is really a specialty of dentistry. There must be specialists for its practice who will be competent to act as surgeons, but the bulk of the profession will always practice dentistry, not oral surgery, but the better grounded a dentist is in the principles of medicine, the better dentist he will be, as well as better oral surgeon.

[TO BE CONTINUED.]

ABSTRACTS AND SELECTIONS.

AFTER-PAINS FROM EXTRACTION OF TEETH.

By Charles B. Isaacson, M.D., New York.

There is no condition which is brought oftener to the attention of the medical practitioner than what is called "after-pains" from extraction. There is no subject in dentistry which has been touched upon less, or to which so little special attention has been given, than this condition. Here and there, in a desultory way, suggestions of methods and remedies have been made, but in all of them, as far as my research goes, there has never been any direct attempt to fathom the causes and to approach the condition radically.

This condition of after-pains generally arises one or two days, or even a week, after the offending member has been extracted. The symptoms vary in intensity from causes which I shall proceed to enumerate.

The average practitioner, when called upon to relieve patients suffering with after-pains, or as the Germans call it, "Zahnlückenschmerz," is generally puzzled how to proceed, not knowing the exact nature of the condition presented to him, the appearance being so unusual, the swelling so intense, with undoubted signs, in a large majority of cases, of pus burrowing under and through the tissues, that the first impression is the indefinite expression "blood poisoning," which in ninety-nine cases I look upon as a snapshot diagnosis.

The direct physico-pathological causes are dimly recognized, and relief is sought by the usual antiseptic measures, which, in minor insignificant cases, may be successful.

The local application of cocain in solution to highly inflamed tissues I hold to be reprehensible; for tissues in that condition do not absorb the medicament, and the danger of a harmful quantity of the drug being swallowed is great. Again, I cannot deprecate too strongly what I may call the wanton use of hot poultices on the face; it seems as if the intervening thickness of the facial muscles is entirely ignored, while the result obtained is only the further infiltration of pus, and the extension of the inflammation to tissues which had been entirely normal, thus causing the original trouble to be exacerbated.

In some cases it may be necessary to use heat in order to lessen the tension, but surely it is only logical to apply the heat directly to the parts affected, which can be very easily done by using pledgets of cotton or pieces of gauze, folded to a sufficient size, steeped in hot water (one or two per cent. solution of carbolic acid is suggested) or a hot infusion of chamomile flowers.

The heat is thus applied directly where it is wanted. I have always found cold packs contraindicated.

I wish to enumerate the possible cause of after-pains, and at the same time venture to suggest the means of relieving the same: (1) the retention of the pyogenic membrane in the socket; (2) expansion of the osseous walls; (3) fracture of the alveolus; (4) sundering of the maxillary process and alveolus, with accompanying lacerations of the tissues; (5) the retention of roots and spicula in the socket; (6) that particular condition of the alveolus and septum from which the gum tissues have been denuded by the encroaching of salivary calculi; (7) the inflammation of the tissues and the undermining of the alveolus from perforation by pus from long-standing pyorrhœal discharges or alveolar abscesses from old roots.

1. The retention of the pyogenic membrane is generally followed by acute pain. When a tooth with septic pericementitis is extracted, the pericementum may or may not be attached to the root. As there is an intense inflammation with plastic exudations, the chances are that the pericementum will still adhere to the lining membrane. In order to relieve this condition, it is necessary to remove all clots, and to curette the socket. For this a small, blunt curette, or preferably a rose burr in the dental engine, should be used. As a soothing application, I have found the following prescription very effectual, used on a tampon in the socket:

R	Mentholi,	
	Acidi carbolic,	
	Tinct. iodi.....	āā ̄ i.
	Ether,	
	Chloroform.....	āā ̄ ss.
M. S.	External use.	

Of course, after the curetting it is necessary to irrigate the socket with a solution of hydrogen peroxid, plus any anti-septic, optional with the practitioner.

2. The expansion of the osseous walls. This condition will require careful examination, and is usually met with when the tooth has been difficult to extract on account of the unyielding walls, and is generally most noticeable when the lower wisdom teeth have to be excised from the thickened alveolus. In a large number of these cases, the outer or the inner wall has been bent, and possibly slightly fractured. In many such cases I have found the usual methods of irrigating and packing of little or no avail. The suffering is usually intense, while the swelling interferes with deglutition, and the pocket becomes a veritable receptaculum for mucus, food, and unhealthily granulations. In these case I have managed to obtain relief in a very short time by using the rose burr and cutting away the bent ridge, burring

away all the irregular edges, making the parts as smooth as possible. This is to be followed by irrigation and packing, and, I believe, with signal success. In minor cases, in which the alveolus has been bent out of shape, compression of the parts, with thorough cleansing of the cavity, will answer. I have always been suspicious of cases in which the alveolus has been luxated, and always feel more confident when I have removed that part.

3. Fracture of the alveolus. This would require the removal of the fractured part, smoothing of all the irregular points, the usual thorough irrigation and antiseptic treatment.

4. Sundering of the maxillary process and alveolus, together with laceration of tissues. This will present to the practitioner the appearance of a large surface, intensely inflamed, caused by the gum contracting over the serrated edges (for, like all tissues, the gum forms a cicatrix, which exerts considerable pressure). The gum, in trying to contract over these sharp points, becomes intensely inflamed, the pus burrows underneath, forming pockets along the whole ridge, and owing to the sack-like condition is generally in a septic condition.

The treatment in this case is to relieve the condition by one or more incisions parallel to the axis of the maxillary; then with the curette, or still better with the burr, all irregularities of the alveolus and maxillary should be cut away, so that the surface is absolutely smooth. A thorough irrigation of the parts and packing them with antiseptic gauze will bring about desired results. In deeper cavities I have used almost every remedy recommended, but have found that none possessed the analgesic properties of iodoform, and though this is so objectionable by reason of its odor, it seems to do its work.

5. When there is retention of the root, and spicula are in the pocket, the cavity is to be cleansed of the spicula; and if the root cannot be removed by forceps or is too small to be grasped, it can be burred out.

6. This condition is a peculiar one, but easily recognized and diagnosticated. This occurs mostly with teeth which have become elongated from want of antagonism; the roots are more or less exposed; deposits take place on them, pushing the tissues farther up from the alveolar wall, leaving it and the septum denuded. After extraction (these teeth are often pulled out by the patient himself), the gum refuses to cover the necrotic wall and septum—hence painful consequences follow.

Relief in this case is very easily obtained by cutting away the dry, friable, necrotic bone until the healthy bone is reached. The usual antiseptic treatment and irrigation are in order.

7. Perforation of the alveolus from an invasion of pus. When repeated perforations have taken place in the alveolar wall, it may be assumed that the nutrition of this bone has been largely

interfered with, impaired, or arrested, and that the wall thus undermined really becomes a sequestrum. The appearance of such a condition would be a large pocket, a bulla of pus outside the ridge, considerable swelling, and possibly the burrowing of pus in several directions. This condition, I have noticed in a large number of cases, takes place long after extraction. The treatment for the same would be a crucial incision, removal of the necrotic wall or sequestrum, and a smoothing of the parts, irrigation and packing as in the preceding cases.

As these cases come under the observation of physicians who are called in to correct the blood-poisoning, which the patient is always supposed to have, and as a great deal of censure is given to the dentist for having extracted the tooth so brutally or so unskillfully, I wish to say that I have sufficient respect for the ability of my confrères to know that these conditions are never produced intentionally, and that they are due to causes which may be beyond their ken, and which arise unexpectedly. Much may be ascribed to the neglect of the patient. The medical practitioner, not being familiar with the mouth, resorts to general antiseptic treatment, whereas these conditions, as before mentioned, can be known only to the dental practitioner and oral surgeon, and should be handed over to the dental practitioner instead of worrying the patient with a long course of treatment, futile in the end and generally accompanied by a liberal dose of opium.

In performing these operations, I have found it more advisable to do so by the aid of ethylic chlorid or the injection of cocain. The use of nitrous-oxid anæsthesia I have found impracticable on account of its short duration and the danger of using the dental burr in a hurry. Of course, in some cases, anæsthesia by ether or chloroform is absolutely necessary to perform the operation thoroughly.

I have not mentioned the possible inoculation from unclean instruments. Such cases have to be diagnosticated *per se*. I have omitted to mention the pains which may, and often do, arise in neurasthenic patients; pains which persist in syphilitic patients; and finally the vagaries of the female nervous system during pregnancy and the catamenia. These require the careful attention of the medical practitioner for constitutional treatment, with the advisable collaboration of a dental surgeon. Every practitioner fastens upon some remedy which has proved faithful to him; so the selection of any preparation, from mercuric bichlorid down to boric acid and formalin solutions, is purely optional.

To conclude, I wish to convey the idea that such pains are caused only by foreign substances, whether they are spicula, sequestra, tissue, clots, mucus, or food retained in the socket; and the removal of these is paramount in any local treatment that can be used.—*Medical Record*.

DEATH UNDER CHLOROFORM.

A young woman named Catharine Moore, aged twenty-four years, a domestic servant, and a daughter of a farmer at Invermay, died under chloroform at Mr. J. S. M'Burney's dental surgery on Saturday. The patient, who was employed by Mrs. T. Morgan, Drummond street, attended in company with that lady in order to have some teeth extracted. Mr. Pinnock, M.D., administered the anæsthetic, after having made the customary examination. Several teeth had been successfully drawn, when the girl partly shook off the influence of the drug, and observed, "I can feel that it hurts." Without any further warning she collapsed. Although the medical man in attendance labored for an hour, with the assistance of Mr. Woinarski, M.D., it was found impossible to restore respiration.

A post-mortem examination made by Dr. Eastwood showed that death was due to syncope, induced by a fatty deposit on the heart. At an inquest held by Mr. Johns, P.M., a verdict to that effect was returned.

Melbourne Argus.

THE ANTIQUITY OF MODERN SCIENCE.

From time to time glimpses come to sight of the light that really existed, far beyond what is commonly supposed, in the esoteric knowledge of the ancient world. Much of the teaching of the earlier books of the Old Testament is now seen to be in accord with some of the most advanced sanitary science. Professor Nuphtuli Herz Imber, in the *Denver Medical Times* for April, gives an insight into the medical teachings of the Talmud, from which we gather that most ailments were even in those days supposed to be due to little dangerous organisms, termed "shedins" (destroyers), too small to be seen by the eye. These organisms were inhabitants of air, water, animals, and decomposed wood. Hogs and certain fishes were the creatures most infested by them. Leprosy was due to the presence of such organisms beneath the skin, and its origin was attributed either to eating certain fish or to wearing untanned hides. The ordinances which forbade spitting in the streets of Jerusalem, allotted four cubits of space to each dweller in a room, and prescribed the investigation of the lungs and livers of slaughtered animals, seem to indicate quite an up-to-date board of health some two thousand years ago, while the Talmudic admonition concerning flies as transmitters of disease, if better known, might have caused more respectful attention to be paid to the warning of the surgeon-general in respect of flies and typhoid in our late campaign. *E pur si muove*, but always in an orbit.

New York Medical Journal.

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

THE REPORT OF THE FOREIGN RELATIONS COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

This important paper, published in full in the September issue of the BRIEF, is a document of great significance and value in its relations to the advancement of the standard of dental education, not only in this country, but also abroad, for if its criticisms and suggestions are received in the proper spirit the report will not be without its influence in stimulating dental schools in other countries, as well as in this, to the adoption of courses of instruction more systematic and practical in character and more definitely directed to meet the requirements of the student as prospective practitioners of dentistry.

The report, which is written in excellent taste and spirit, opens with a temperate and discriminating statement of the causes which led to the appointment of the Foreign Relations Committee and the Advisory Boards resident in foreign countries. In this connection the evils of an educational system, or lack of system, which in several States has enabled unscrupulous men, by connivance with lax or corrupt legislators, to obtain legal charters for fraudulent schools, are fully recognized. The fact is also freely admitted that "In the formative educational period, when dental schools existed nowhere save in America, and when even dentistry itself was undefined, empirical, tentative, with no distinctive line of practice and no

clearly prescribed curriculum of study, the newly adopted degree may have been conferred in some instances on insufficient acquirements."

Allusion is also made to the fact that while these abuses in our educational methods are being in a great measure overcome by the establishment of higher preliminary qualifications for matriculation, and of more exacting requirements for graduation, there has, up to the present time, been no rule by which to judge of the educational attainments of students from foreign countries, large numbers of whom annually present themselves either with diplomas or with undergraduate certificates from foreign schools.

Hitherto the information obtainable here regarding the real character of these schools and the true value which should be attached to diplomas or certificates issued by them has been of the most meagre and desultory character. Often certificates so presented were intrinsically quite as fraudulent as those issued by bogus diploma mills in this country.

It is, of course, evident that without accurate information regarding the status of the institutions granting certificates, or knowledge of the character of those holding them, it was impossible to discriminate as between either reputable or disreputable foreign schools or students. Hence many foreigners succeeded in obtaining advanced standing in American schools whose credentials were as worthless as their characters were contemptible. Such men, flaunting the title of "American Dentist," were fast making that name disreputable throughout Europe.

For this reason one of the chief aims of the Foreign Relations Committee has been "to obtain definite information concerning dental regulations and laws in foreign countries; to learn what were the curriculum and requirements of all foreign dental schools, with the view of determining what value should, under American laws and regulations, be given their certificates of study, either as a qualification for dental practice in America

or for admission to advanced standing in American dental colleges."

This information, as far as at present obtainable, is embraced in this report and constitutes its most salient feature. The countries reported upon are Australia, Switzerland, Spain, France, Germany, Austria, Italy, Mexico, Japan, Holland and Belgium, Great Britain, Sweden, and Canada.

That this portion of the report will excite discussion, criticism, and in some cases protest, is inevitable, for it is adverse to granting any advanced standing whatever to the holders of diplomas from schools in some of the countries named, and the full equivalency of the instruction in very few foreign schools is recognized.

The subject is, of course, one of delicacy as well as difficulty. To obtain exact data regarding courses of instruction in schools located in distant lands, schools which in many cases have been but recently organized and which are often most imperfectly equipped for the task they have assumed is well nigh impossible. It can be measurably accomplished only through careful and painstaking inquiry by the members of the Foreign Relations Committee and of the Advisory Boards resident in the countries in which dental schools have been organized. These bodies, constituted as a permanent bureau of inquiry, will in time be able to secure information much fuller and more exact, and therefore more authoritative, than that upon which their present conclusions are based.

The report formulates the minimum requirements to be demanded of foreign dental schools whose students desire advanced standing in the dental colleges of this country. They are in brief, a standard of preliminary education equal to that demanded here; attendance upon three full courses of lectures of not less than seven months each, covering all the studies proper in a full dental curriculum; fully equipped laboratories for bacteriology, chemistry, histology, pathology and for prosthetic and technic work, and a properly equipped infirmary for the re-

ception of patients to be operated upon by students of the institution.

When these requirements are universally enforced, both at home and abroad, the era of true interstate and international reciprocity in all that relates to dental education and dental practice will be possible. In the meantime the Committee on Foreign Relations and the Advisory Boards are to be congratulated upon the good results thus far secured.

Dr. Barrett, chairman of the committee, upon whom the brunt of its labor has fallen, is entitled to the hearty thanks of his professional brethren for the good work he has already accomplished. Gratitude has been cynically defined as "a lively expectation of favors yet to come." In Dr. Barrett's case it surely must embrace also a keen appreciation of the benefits already secured through his zealous and untiring industry on the important committee of which he is the presiding officer.

OBITUARY.

DR. HENRY H. BURCHARD.

The announcement that a career so brilliant, so fruitful and so full of promise of still higher usefulness as that of Dr. Burchard has been closed by death, although a cause of deepest regret to his many friends, cannot but bring with it the consoling thought that a long and heroic struggle against disease and adverse circumstance is at last ended, and that with the end came rest and peace.

Born in Philadelphia, September 20th, 1862; he died at Redlands, California, June 25th, 1900; thus closing a life which, while it had not traversed four decades of time, had covered far more than the allotted span if measured, as life should be measured, not by length of years, but by their helpfulness to mankind.

Dr. Burchard's preliminary educational training closed with courses of instruction received at the Philadelphia High School, which institution he left in order to enter, in 1879, the engineer-

ing class of the United States Navy, with a view to fitting himself for the position of engineer in that branch of the service. Subsequently, however, he determined to qualify himself for the practice of dentistry, and in 1881 entered a dental laboratory as a student, afterward matriculating in the Philadelphia Dental College, from which institution he graduated in the year 1885. The following year he was appointed Demonstrator of Anatomy in that school and thus entered upon his first work as a dental educator. During his occupancy of this position, from 1886 to 1888, he attended the prescribed courses of instruction in the Jefferson Medical College and in the latter year graduated from that school as Doctor of Medicine.

Dr. Burchard, by his thorough, practical and theoretical training, was admirably equipped for that work in the field of dental literature, upon which he at this time entered; and up to the period when his none too vigorous organism succumbed to the ceaseless and exhausting labors imposed upon it, his contributions to the literature of his profession were numerous and increasingly important.

As he himself fully recognized, his intellectual trend was not in the direction of original research. He was a collector and recorder, rather than a creator of scientific data. His mind was keenly analytical, his literary instinct unerring, his memory unfailing. This latter quality Dr. Burchard himself regarded as one of the most potent factors in his success as a writer and teacher. His memory had not the appalling comprehensiveness and tenacity of Macaulay's, of whom Sydney Smith said that "he should take two tablespoonfuls of the waters of Lethe every morning to correct his retentive powers," but it was an effective and indispensable equipment for the vast and varied work to which his life was devoted—and sacrificed.

From his first entrance upon the active practice of his profession, Dr. Burchard's contributions to current dental literature were numerous and valuable. He had an important share in the preparation of the American Text Book of Prosthetic Dentistry, and also the American Text Book of Operative Dentistry, the value of his coöperation being fully and gracefully recognized by the author of the latter work, Dr. Kirk, who in its preface expressed his "grateful appreciation of the assistance rendered by Prof. H. H. Burchard, who, from the inception to the completion of the work, in all its phases, has by wise counsel,

intelligent criticism, and skilled effort, largely contributed to the attainment of whatever excellence it may be found to possess."

Dr. Burchard's most important independent literary work, and that with which his name was most fully identified, was a volume on Dental Pathology, Therapeutics and Pharmacology, published in 1898. It was largely the outgrowth of his work as Professor of Pathology and Therapeutics in the Philadelphia Dental College, between the years 1896, when he entered upon the duties of that chair, and 1898, when, as the result of impaired health, he found himself unable longer to continue in the position he had filled with so much brilliancy and success.

Although thus compelled to abandon a labor he loved, and a home endeared to him by many ties, in order to seek for a restoration of his shattered health in a distant State, to the last he did not abandon hope or lose his love for and desire to work. He was an enthusiast in his profession, but was not a man of one idea or of a one-sided development. To the last his active brain never lost its interest in the progress of art and science, in the problems of sociology, or in the events of contemporaneous history.

In the whole field of general literature he was actively interested, and brought to its enjoyment a taste as catholic as it was cultured. With intellectual resources so manifold and so keenly satisfying, a life however burdened with care can never be wholly unhappy.

Modest and unassuming in manner; not given to self-advertisement; sensitive to criticism, and yet glad to profit by its lessons; loyal in friendship; faithful to duty; steadfast to truth, such was Henry H. Burchard, who, living, was an ornament to his profession, and dead, leaves to her the priceless legacy of a noble life spent in her service.

Dr. Burchard was married, April 30th, 1888, to Miss Esther Vinson, of Philadelphia. She, with two daughters, survives him.

A reproduction of his latest photograph appears as a frontispiece to this issue of THE BRIEF.

Questions and Answers.*

In answer to J. C. N., Altoona, Pa., in the DENTAL BRIEF, for August, concerning the preparation described as "Glycerol," I desire to submit the following: A glycerol is a solution of a medicinal substance in glycerin; thus a glycerol of alum is made by dissolving one ounce of alum in five fluid ounces of glycerin. The United States Pharmacopœia, in commenting upon the subject, states that the solvent and preservative properties, as well as agreeable taste and permanent consistency of glycerin, render it very useful as a menstrum in pharmacy, and a certain class of preparations consisting of medical substances dissolved in it has come into extensive use. The British Pharmacopœia has adopted such a class under the name of "Glycerina" or "Glycerines." This title is not now available because the terminations are reserved for alkaloids. While the term "Glycerols" adopted from the French is objectionable as the termination has been used as designative of certain proximate principles. In French we find a "Glycêrole d'Acid Gallique;" in German, "Gallussäwei Glycerit;" but the United States title is "Glycerite" or "Glyceritis," and is thought to be in every way satisfactory. Of course, there is no such thing as "Glycerol," *per se*, what the author of the supposed mummifying formula intended to say or should have said was "Glycerin." *G. W. Weld, D.D.S., M.D., New York.*

In reply to J. C. N., question No. 99, August BRIEF, I would say that "Glycerol" is simply glycerin; "Glycerol" being a synonym or a manner of expressing the same meaning by the use of a different word. *G. C. B., Philadelphia.*

Question 100. A superior lateral with a chronic abscess at apex fails to respond to ordinary and extraordinary medical treatment; is what is known as amputation of the root apex applicable in this case, and is such an operation practical? In speaking of the amputation of the apex of the root in such cases a text book says: "A vertical incision is made which includes the fistula and exposes the process. The opening through the

*Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila

process is enlarged; the necrosed cementum is exposed, and a small and extremely sharp fissure burr driven rapidly is laid against the wall of the root and a constant pressure upon the burr maintained until the dead part is amputated. A sharp scaler may now be employed to round the edges of the root and make the cut surface smooth." This description does not tell us what becomes of the amputated apex. Is it removed? If so, please give in detail the method of removal. If allowed to remain what becomes of it? If nature absorbs it, why did it not do so before it was cut off? If it was denuded and had more or less deposits of calculi, it was a foreign body as much as it would be after amputation. S.

The editor of "Questions and Answers" has had some very successful experience in the treatment of old abscesses by direct operation upon the end of the root. The method employed, however, differed somewhat from that given in the text book referred to, depending more upon scraping the end of the root than actually cutting it off. If the apex is really excised, the piece should be removed through the opening in the bone, which should be of sufficient size to permit this. At the clinics of the recent Dental Congress in Paris, one operator claimed that he treated all chronic abscesses in that way, but he did not excise a piece of the root, simply ground off the diseased parts with a fissure burr and afterward washed out the cavity, in this way getting rid of the débris.

The following questions have been received, and as they are both of real practical value, and are capable of being answered in a variety of ways a general expression of opinion is asked for.

Question 101. How should the hypodermic needle be introduced into the gum tissue so as invariably to produce the "weal" of infiltration, and thereby secure an immunity from pain in the extraction of teeth?

Question 102. What is the best way to get rid of gum-tissue extending into the cavities of proximate surfaces of molars and bicuspid, and also to adjust the rubber dam in such cases below (or above) the cervical margins?

The following replies have already been received to questions Nos. 101 and 102: First wash the mouth with a three per cent. solution of pyrozone, and then apply a twenty per cent. solution of cocain to the gum tissue at the point where the needle is to be inserted. The point of the needle, after being

made thoroughly aseptic, should be forced into the tissue at a point midway between the apex of the root and the margin of the gum, allowing the point of the needle to come in contact with the surface of the alveolus. The needle should then be slightly withdrawn and a few drops injected, being very careful not to force any of the injected solution under the sub-mucous tissue. It is well to insert the needle point at a point near the apex, and also at the gum margin, both on lingual and buccal side.

Gum tissue is easily gotten rid of if the following methods are observed: After a thorough cutting away of the gum with lancet, pack the cavity for one or two days with cotton saturated with sandarac varnish. Insert for the next treatment a gutta-percha filling, forcing it well up into the gum, and entirely filling the space between the two teeth, and leave for one or two weeks, when the gum will have returned to its normal condition, and will be far enough beyond the cervical margin to allow the placing of the rubber dam, and a slow and painless temporary separation will have been produced.

Other methods, more painful and tedious, can be used, such as the daily placing of iodine or tri-chloroacetic acid until the gum is absorbed or eaten away.

F. G. Baldwin, Ansonia, Conn.

Practical Points.*

Carbolic Acid Burns.—Carbolic acid burns may be neutralized by immediately sopping with alcohol.

W. C. Smith, Pacific Dental Gazette.

Soreness at Apex of Root.—A solution of menthol in chloroform, applied in root canal, will remedy the soreness at apex after pulp has been devitalized by arsenic and removed.

W. C. Smith, Pacific Dental Gazette.

Polishing Fillings.—Keep a cake of calcined magnesia in the cabinet and when the last disk of fine cuttle-fish is to be used, touch it to the magnesia and you will give the gold a brilliant polish.

Dental Hints.

Replacing a Broken Logan Crown.—When the porcelain of a Logan crown has broken away, leaving the post firmly fixed in the root a Bonwill crown may often be made to serve in replacing the porcelain, trimming down the Logan post and fixing to it the post of the Bonwill crown.

Wm. Hern, Journal British Dental Association.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Bay St. Louis, Mississippi.

Filling Material for the Deciduous Teeth.—Gutta-percha, into which has been incorporated dry powdered Portland cement, makes a hard filling, which seals the cavity perfectly and stands wear well.

G. J. Siddell, Dental Register.

Lunar Caustic with Cocain.—To make the application of silver nitrate less painful simultaneous use of cocain nitrate is recommended. The hydrochlorate is not suitable, as it precipitates silver as chlorid.

Ztsch. f. Ph.

For Polishing Plates.—Cones and wheels made of car-spring rubber are superior to felt wheels and cones. But a small amount of water is needed, as the rubber does not absorb the water like the felt cones, and this saves the hands and clothing from being soiled by the flying water and pumice.

H. T. Crews, Dental Headlight.

Antrum Treatment.—If you use peroxid of hydrogen, be careful with it, for almost all peroxid is strongly acid in reaction, and it smarts. Add, just before using, limewater or sodium bicarbonate and test it with litmus paper until neutral in reaction, and you will find it is no longer painful. I neutralize it and then use it full strength.

R. H. M. Dawborn, Dental Cosmos.

Hæmophili.—Perhaps the administration of calcium chlorid is the most scientific treatment. Cases are cited where this drug has been used with wonderful success. On a man of 20—alveolar abscess—incision $\frac{1}{8}$ inch long; profuse hemorrhage in spite of pressure and styptics. He had several times bled until he fainted. Calcium chlorid was given in grain doses every two hours; after three doses the blood formed a firm clot. Worthy of trial, though in some cases no benefit resulted.

Chas. A. Porter, International Dental Journal.

Crowning a Molar Decayed Below the Gum Margin.—When moisture cannot be excluded fit and adjust a band before treating and filling the roots. With the band in position, and dam adjusted, the tooth can be kept dry, and the roots treated and filled satisfactorily. Cut the band down to occlusion contour, and turn in at the free edge slightly with pliers. Mop out the cavity with a 1 per cent. solution perchlorid of mercury in absolute alcohol, dry with hot air, and partially fill with Harvard cement. While at its stickiest put on a piece of fairly soft amalgam, and burnish from center to circumference, covering the cement, carrying the amalgam to the edges of the band. Add sufficient amalgam to cut free of the bite. Polish at a subsequent sitting.

J. H. Babcock, Journal British Dental Association.

Hemorrhage After Removal of Live Pulp.—Hemorrhage is sometimes copious, but I have found that witch-hazel, freely used, would check the flow in a very short time.

A. H. Peck, Dental Digest.

Corks in Place of Glass Stoppers.—Corks, steeped in vaselin, are an excellent substitute for glass stoppers. Acid in no way affects them and chemical fumes do not cause them to decay, neither do they become fixed by a blow or long disuse. They have all the utilities of glass without its disadvantages.

National Druggist.

Partial Impressions.—To prevent adhesion of plaster to the teeth in taking partial impressions, request the patient to hold milk of magnesia in the mouth until the introduction of the plaster. Upon removal the impression will be found sharp and smooth. The film of magnesia adherent to the teeth prevents the plaster from sticking while hardening, but makes no appreciable difference in fit of plate.

H. H. Johnson, Dental World.

Chloretone in Removal of Live Pulp.—I injected the etherial solution of chloretone into the live pulp of a right upper cuspid. As the needle advanced into the pulp chamber I pressed warm wax around it, thus closing the cavity so that the liquid would not escape. Forty seconds later I withdrew the needle and wax to permit the ether to evaporate. I removed the pulp with a broach one minute after the injection. The patient stated that the operation was painless.

Michael Leo, Items of Interest.

Failure in Regulating Cases.—This is often due to failure on the part of the dentist to recognize the similarity in process between the osseous union of a fractured bone and the formation of new bony material around the tooth, losing sight of the fact that as absolute fixedness of the parts is essential to the successful union of a fracture, it must necessarily be quite as important a consideration in connection with tissue formation in the alveoli. The retaining apparatus is to the loose tooth what a splint is to a fractured bone, with the difference that it is necessary to wait much longer for teeth to become fixed in new positions than for the firm union of bone. Moved teeth exhibit a wonderful perversity in their attempts to struggle back to their old positions. A retainer, when removed, should be left off only a few days before trying it in place again. If force is necessary to get it in position it should be at once cemented in place again and worn for a few months longer, and then tried again as before.

S. H. Guilford, Dental Digest.

Annealing Platinum.—If platinum be annealed in the open flame of a Bunsen burner it becomes very harsh, because it absorbs gas, but if it be fused in the muffle of a gas furnace, where no gas can get at it, or in an electric furnace, it will become as soft as tin-foil.

Jos. Head, Den. Cosmos.

To Remove the Cloth Adherent to the Sheets of Black Rubber.—When the rubber adheres tenaciously to the cloth used in separating the sheets of black rubber, cut the whole into strips and throw into cold water. The cloth can then be readily peeled from the rubber.

T. F. Chaplin, Dental Office and Laboratory.

Gold Plate Strengtheners.—Wax in position on the plaster cast a piece of half-round wire outlining a narrow upper plate. In the zincs this is represented by a ridge, which strikes up a groove across the gold plate, adding greatly to its strength. The gum soon grows into this so that little or no space remains.

L. Read, Ohio Dental Journal.

Nickel for Regulating Appliances, etc.—The five-cent nickel coin metal makes excellent bands for regulating appliances. It can be rolled as thin as the Angle bands; it solders easily with silver solder or 18K gold. It also makes excellent screws and nuts. Cut in narrow strips it makes excellent strengtheners for rubber plates, similar to the Hall white metal bars.

N. H. Keyser, Dental Office and Laboratory.

In Case of Pericemental Inflammation.—When teeth containing putrescent pulps involved with pericemental inflammation and great tenderness are to be drilled into, the tooth should be braced, either with a clamp or modeling compound formed about it and chilled when it can be so held in place as to support the tooth and prevent the pressure in drilling from causing pain. Sharp instruments and burrs afford the most effective aid to other means employed for relieving sensation.

B. Holly Smith, Den. Digest.

Hyperesthesia in Erosion.—The chemical caustics like silver nitrate and gold chlorid are not very powerful, and discolor the teeth. I have used antimony chlorid with advantage, but as the caustic power of this salt is extreme the greatest care is required in its use. Such therapeutic use of it, however, is efficacious and free from inconvenience, with proper precautions, and it does not discolor the teeth. Protect the lip with a role of cotton. Protect the application and retain it several seconds; rinse the mouth with a soda solution—four grains of bicarbonate to the litre of water. Usually one treatment is enough, but may repeat if necessary.

M. Michaels, International Dental Journal.

Pyorrhea Alveolaris: Complications.—Dr. Wm. Ewart (Royal Med. and Chirur. Soc., Eng.) said that the consequences of the disease were far reaching, and in the way of dental toxins producing functional ailments * * * and especially as a cause of malignant endo-carditis, a source frequently overlooked.

British Dental Journal.

The Application of Nitrate of Silver.—This salt is so quickly dissolved by contact with saliva that the gum is liable to be cauterized also. To avoid this, heat the end of a German silver probe to nearly or quite red heat. On dipping in the crystals some little will fuse on the probe, thus making an ideal carrier and applicator. *H. R. Neeper, International Dental Journal.*

To Obtain Duplicates of Plaster Models.—Soak about 150 leaves of common gelatin in cold water for one or two hours, gradually adding four or five ounces of oil, constantly stirring. Place the model in an enameled vessel and pour the above mixture over it. After about three hours it will have hardened, when the model may be removed and any number can be poured. *F. A. B., Dental Office and Laboratory.*

Chloretone; the Ideal Local Anæsthetic in Dental Surgery.—Equal parts, by weight, of ether and chloretone is very efficient in preparing painful cavities for fillings; also in setting crowns and in bridge-work, in overcoming the pain caused by the action of the glacial phosphoric acid of the cement. It should be employed when a live pulp must be removed. This can be done painlessly after thorough application of the above solution.

Michael Leo, Items of Interest.

Preparation of Roots for Crowning.—In preparing roots for crowning I think it is good practice to make sure of your foundations. Before opening the nerve canal fully, or using broaches, I prefer to sterilize cataphorically by introducing some antiseptic, as argentine nitrate or formaldehyd, into the canal; then turning on the current for five minutes, and at the next visit remove the débris. In this way we get rid of the possibility of forcing morbid matter through the apical foramen.

Sir George Elliott, Journal British Den. Asso.

Cleansing Pyorrhea Pockets.—Wash out loosened particles of calculus with luke-warm water, to which an antiseptic has been added, and follow by pyrozone, which should have been brought to the temperature of the body in an open vessel and a small tablet of soda-mint added just before using. The increased temperature lessens pain and the soda-mint neutralizes the acid and liberates oxygen, causing greater effervescence with better cleansing of the pocket. It acts as a pus destroyer also.

A. H. Mabce, Dominion Dental Journal.

Milk as a Lubricant.—In taking plaster impressions, instead of using vaselin or glycerin to facilitate removal of the impression from the mouth, the patient should be allowed to rinse the mouth with a little milk immediately before the tray is inserted.

Pharmaceutical Journal.

Gutta-Percha Fillings.—Evaporate the solvent from Canada balsam and moisten it with chloroform and line the cavity with this solution. Fill with gutta-percha, finishing the filling with tape moistened with chloroform. This makes a filling which will not leak, and which holds so fast to the cavity that it cannot be pried off.

A. M. Holmes, Atlanta Den. Journal.

Investment for Soldering Cap and Post for Crowns.—The investment for soldering metal post to cap may satisfactorily consist of pumice powder merely. Take an iron or brass ferrule, fill it with pumice powder pressed down. Then press into it the pin and cap, drop a few drops of water on the pumice, and the flame may be turned on at once.

H. Baldwin, British Dental Journal.

Platt's Medicament Pliers in Root-canal Treatment.—The beaks of Platt's medicament pliers approximate at the extreme end only, and as the pliers are dipped into the solution to be applied, a drop clings in between the points, and upon placing them in the tooth and spreading the points the solution flows just where it is needed.

H. L. Seager, Pacific Dental Gazette.

Clyde Pagni's Obtudent.—A small quantity each of a saturated solution of cocain in carbolic acid, and of carbonate of potassium and glycerin, is placed on a warm glass slab (at the side of a flat bottle of hot water) and mixed. The rubber dam is applied and the cavity made as dry as possible, with bibulous paper, absolute alcohol and hot air. A drop of the above mixture is then placed in the cavity and hot air blown on it, as warm as the patient can bear. This is kept up for five minutes, when the tooth can be excavated quite painlessly.

Dental Office and Laboratory.

When Extraction and Replantation is Indicated:—

1. In persistent alveolar abscess;
2. Abscess associated with pyorrhea.
3. When a broach has passed through the apex and refuses to be withdrawn, or a drill has broken off in the pulp cavity.
4. When careless preparation of pulp cavity for pin of crown has resulted in perforation of the cementum.
5. In case of deformity of roots, prohibiting thorough cleansing of canals.
6. A tooth having exostosed roots; amputate affected portion and return to socket.

J. T. Murliss, Jr., Dental Digest.

Tempering Swiss Broaches.—Place a dozen or two in a glass tube and draw the temper to a deep blue over an alcohol lamp or a Bunsen burner. The glass protects them from currents of cold air, allows them to cool slowly, and enables one to see the color of the steel. *S. G. Perry, International Dental Journal.*

Opening an Abscess.—If the reverse end of a match be dipped in a saturated solution of carbolic acid and cocain and applied prior to the injection of cocain, with gradually increasing pressure at the point of the gum where the needle is to be inserted, it will render the operation painless.

B. Holly Smith, Den. Digest.

Sterilizing Brushes.—Tests with a large number of brushes showed that boiling them for ten minutes in a 1 per cent. solution of soda, keeping them afterward in a 1-1000 solution sublimate, sterilized them in respect to the pathogenic germs usually encountered, with complete success and without injury to the brush.

A. Winternitz, Journal American Medical Association.

Chloretone; Strength of Solutions.—An aqueous solution of 0.8 to 1 per cent. of chloretone has approximately the same anæsthetic effect as a 2 per cent. solution of cocain. The solutions keep indefinitely; it is not even necessary to use boiled water to make a sterile solution. It is itself a powerful antiseptic and destroys germs.

Therapeutic Notes.

A New Method in the Employment of Cocain.—G. Milian (in *Presse Medicale*) employs for local anæsthesia, 2 to 4 per cent. solution of cocain and ethyl chlorid, sprayed or applied with a cotton plug. It does not produce deep anæsthesia, but more profound results than the ethyl chlorid alone. It deposits the cocain in the skin or mucous membrane, causing anæsthesia of the superficial nerves.

Mirck's Annual.

Filling from the Lingual Surface of Superior Incisors.—Crystal mat gold offers great advantages from the tendency of the pieces to stay where they are put, instead of falling, rolling and tipping, as in the use of gold foils. Use round-pointed pluggers with a rolling motion, spreading the gold like a paste, thus giving a uniform surface.

N. H. Bishop, Ohio Dental Journal.

After Pains of Extraction.—

R. Menthol.....	5i.
Chloral Hydrate.....	5i.
Camphor Gum.....	3ss.
Alcohol.....	fl. 3i.

Wash out the socket with warm carbolized water and introduce cotton saturated with the above.

I. Henry Morgan, Atlanta Dental Journal.

Miscellany.

Asterionella a Cause of Foulness in Drinking Water.—G. C. Whipple and D. D. Jackson have made a study of the life history and properties of *Asterionella formosa*, a diatom which is a frequent cause of foulness in the supply of drinking water to American cities, giving it an odor varying from fishy to geranium-like, caused by the formation of an oil having a strong analogy to the essential oils. During periods of stagnation the diatoms form spores at the bottom of the reservoirs, and they increase with very great rapidity when these spores germinate; this growth taking place chiefly during the spring and autumn. The growth of the diatom is greatly favored by light; and the best mode of preventing its increase appears to be to store the water in the dark. *Journal New England Waterworks Association.*

Hardening Steel.—A patent has been granted to Ludwig Schiecke, of Magdeburg, Germany, for a new process of hardening steel. The piece of steel to be treated is first coated with a protecting mass that is able to resist the heat of the fire in which the steel is placed, and cyanide of potassium is strewn upon the coating, after which the whole is placed in the fire. The piece thus treated is then quenched. The coating is applied with the object of making the action of the cyanide as uniform as possible, and it consists of chalk, clay, or similar material bound together by varnish. Through this porous coating the cyanide passes and exerts its effect uniformly on the surface of the steel. A development of the process consists in strewing a mixture of cyanide and salt upon the coating while the steel is being heated.

Professions for Boys and How to Enter Them.—Family physicians are so often consulted with regard to professions that the sons of their patients may take up, that a recent work of Pechell and Nolan, with an introduction by the present Bishop of Calcutta, the former headmaster of Harrow school, will be of interest. The book is eminently practical in the facts and figures that it gives. Young men are discouraged from entering the medical profession at present, owing to the overcrowding of its ranks. The naive remark is added that there is no profession that suffers more from bad debts. On the contrary, the authors point out that there seems to be room for young men in the dental profession, and they insist that young Englishmen who take up that profession should spend at least a year in study in America. Our own President Thwing, of Western Reserve University, pointed out in *The Independent* not long ago that the dental profession was the only one which a young man might reasonably expect to enter in our day and make his own living at once.

Medical News.

St. Helena as a Place of Military Confinement.—From the health point of view probably no place in the world could be found more suitable than St. Helena for the confinement of our prisoners of war. There is not in the whole island an insalubrious spot. The common English gorse (*Ulex Europæus*), a good judge of climate, grows abundantly. The temperature is remarkably equable, and although the island is so much nearer the equator than is the cape, it is yet very much cooler. The winters are much warmer than those of England, but the summer heat is rarely so great. The whole of the island is much above the level of the sea and always breezy; even Jamestown, its harbor, is four hundred feet, while the greater part of the plateau is little under a thousand, and much of it yet higher. The water supply (from 160 wells) is excellent, and almost all kinds of European fruits and vegetables are grown. Should the prisoners desire employment, there is much land needing reclamation and abundant scope for gardening. As the island lies on the ocean highway, there should be no difficulty in supplying abundance of mutton, coffee, and other Boer necessities.

Polyclinic.

Quartz Thermometers.—Taking advantage of the fusibility of quartz, that substance having been shown by Boys to assume a plastic state in the flame of the oxyhydrogen blow-pipe before melting, A. Dufour has constructed a thermometer for high temperatures which has a quartz bulb and stem. Tin is used for the liquid, since it is readily obtained in a pure condition, has a relatively low melting point, and is not appreciably volatile below a red heat. The thermometer is filled with molten tin by aspiration. After obtaining as perfect a vacuum as possible in the stem, it is sealed in the oxyhydrogen blow-pipe. The last few bubbles of air are got rid of by melting the tin and giving the thermometer repeated shocks. If the tin forms a trace of oxid this collects in the bulb and remains there. The meniscus in the stem is always very bright, resembling that of a mercury thermometer. The bulb must be thick, otherwise the tin, in contracting, will fracture it. The author suggests that tubes of quartz are likely to prove valuable for spectroscopic work, obviating the difficulty of obtaining a pure spectrum, which is not possible under certain conditions when glass tubes are employed. Commenting on this note, Armand Gautier states that in 1869 he succeeded in making small tubes of quartz, employed as air thermometers, and as coils for causing gaseous mixtures to circulate in unalterable capillary tubes, in the course of his researches on the influence of temperature on the combination of gases. The apparatus constructed thus of quartz was shown by him at the Universal Exhibition of 1878.

Indigestion.—T. Sauder Brunton lays down the following rules for treatment of chronic functional dyspepsia: The first rule is to eat slowly, masticate thoroughly, and insalivate completely, three things which are not always the same. The next rule is to take solids and liquids separately. The latter in the shape of hot water on rising in the morning, between eleven and twelve in the forenoon, about four or five in the afternoon, and at night before going to bed. When these rules do not suffice to remove the dyspepsia the patient must take his farinaceous and proteid foods at different meals alternately; a farinaceous meal at breakfast time and again at five o'clock, and meat or fish meals at midday and at eight o'clock. In some cases it will be found advantageous to supplement the gastric juice with a little acid and pepsin. A little alkali with calomel may be given before meals, or if there is gastric catarrh some substance containing tannin, such as infusion of gentian, may be preferable. In cases with flabby tongue perchlorid of iron with quassia will probably be of more service. When there is gastric dilatation which will not yield to the measures above mentioned, it may be necessary to wash out the stomach in the morning or at night. *The Clinical Journal.*


Heredity.—Prof. Arthur Thomson's lecture on "Heredity" at the Royal Institution of Great Britain was an able and lucid exposition of an exceedingly difficult subject. Three kinds of inheritance were distinguished: (1) Blended, in which the character of the two parents in regard to a particular structure, e. g., the color of the hair, is intimately combined in the offspring. This form is well seen in hybrids and is probably the most frequent mode of inheritance. (2) Exclusive, in which the character of one parent is suppressed in regard to a structure, e. g., eye-color. (3) Particulate, in which part of a given character is wholly paternal and part wholly maternal. Suppose the parents of a foal to be light and dark. If the foal is piebald the inheritance is particulate. Inheritance is not dual but multiple. A man, says Mr. Pearson, "is the product of all his past ancestry, and unless very careful selection has taken place the mean of that ancestry is probably not far from that of the general population. In the tenth generation he has theoretically 1,024 tenth great-grandparents. It is the heavy weight of this mediocre ancestry which causes the son of an exceptional father to regress toward the general population mean." The transmissibility of acquired characters was considered not to have been established, but if the effects of "nurture" could not be entailed on the offspring, it was all the more important to secure for them good "nurture."

Gasolin as an Antiseptic and Surgical Detergent.—Riordan (B. L.) finds that gasolin has a decidedly antiseptic effect when applied on cotton gauze, and that it does not irritate fresh wounds. If after scrubbing with soap and water the surface is wiped off with gasolin the cleansing effect is much deeper, cleansing out the mouth of hair follicles, sebaceous and sweat glands much more perfectly than soap and water alone.


Journal American Medical Association.

The Toxic Effects of Boric Acid are described by Dr. J. J. Evans in the *British Medical Journal*. In treating a case of cystitis increasing doses of 10 to 20 grains of boric acid three times a day were prescribed. After about three weeks of this treatment an erythematous rash spreads over the patient's neck, face and head, followed by some subcutaneous oedema, and a fine scaly dermatitis. The salivary glands became enlarged, and eventually the hair on the face and head fell out, so that in about a fortnight the man was perfectly bald. The drug was discontinued, but six weeks elapsed before there was any reappearance of hair on the face or head. In numerous other cases of cystitis and urethritis extending over a period of five years, Dr. Evans has observed similar effects following the administration of boric acid—that is, an erythema followed by a fine scaly exfoliation. Immediate discontinuance of the drug prevented development of the more severe symptoms, but in one case, in which it was inadvertently continued, the hair fell out to a slight extent, and there was marked exfoliation of the skin, especially of the hands, with onychia and splitting of the nails. Dr. Evans concludes that the symptoms were entirely due to the action of boric acid on the skin and appendages.

Oxygen and Exercise.—In the Bradshaw lecture before the Royal College of Physicians, of London, Dr. A. Foxwell states that the first result of exercise is to increase the rate and depth of respiration. The respiratory quotient—that is, the amount of carbonic acid divided by the oxygen—is not increased with exercise, as the tissues are as rich, if not richer, as when at rest. This necessitates an increase in the amount of oxygen absorbed, since a man gives off more carbonic acid when undergoing exertion than when at rest. It is a strange fact that arm-work per unit of work done requires a greater absorption of oxygen than climbing; while climbing takes more than walking on the level. If the amount of oxygen absorbed during sleep is 100 grams per minute, then there would be absorbed 500 grams by a man walking at three miles per hour on the level, and 5,000 grams in climbing a yard high, and in turning a wheel with the arm, 7,000 grams for an equivalent amount of kilogram meters. The enormous increase in the amount of oxygen absorbed and carbonic acid given out must necessarily act to strain the organs, and Dr. Foxwell believes that the lungs and the right ventricle of the heart bear the brunt of the extra labor involved in short strenuous exertions.



NOTES *from the* PUBLISHER



NINETEEN HUNDRED

Is rapidly drawing to a close, and in a short time every dentist will subscribe for one or more journals for 1901. If he feels that he only wishes one, the DENTAL BRIEF will come nearer covering the whole field than any other journal published in the United States. Every article (as its name implies) is "Brief" and to the point, at the same time covering the subject thoroughly. One has only to glance at the "Questions and Answers," "Practical Points," and "Miscellany," to appreciate that they are of great value to any dental practitioner. The series of articles now being written by Dr. I. Norman Broomell will not only be found highly instructive, but highly interesting. Dr. Broomell was sent to Paris, to attend the International Dental Congress, as the special representative and solely in the interest of the DENTAL BRIEF, and his writings will appear only in this journal.

To all new subscribers we make this offer. We will send to any dentist in the United States or Canada the DENTAL BRIEF, from September, 1900, to January, 1902, for the price of one year's subscription—\$1.00.



Statue Erected in Commemoration of the Discovery of the Inoculation Treatment for Rabies.
The figure to the left of the statue is the first patient operated upon, and to-day
remains as Custodian to the Pasteur Institute. (See Page 673.)

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ORIGINAL COMMUNICATIONS.

The International Dental Congress, Paris.

By I. Norman Broomell.

**The
Pasteur Institute.**

Between the sessions of the Congress many of the delegates availed themselves of the opportunity to visit some of the many places of interest in and about the French capitol. Not the least profitable and enjoyable of these visits was the one made to the Pasteur Institute. The institute is situated some distance from the center of the city, but a pleasant drive of a half hour or more brought us to its gates. The original building, over the entrance to which is inscribed "Institute Pasteur, Subscription Publique 1888," was first inspected. This building at the present time is given up almost exclusively to laboratories, and there are many of them. The old rooms devoted to this purpose do not impress one as being modern in equipment or methods, but the visitor is at once amazed at the vastness of the work being done, and soon a keen interest is taken, an interest which quickly manifests itself by many interrogations.

After a general tour of the building, we were ushered into the clinic room, arriving just in time to see a female patient receive her final treatment for a possible hydrophobic condition. The treatment, which had been given to sixty-one patients on this day, is of brief duration, and is extremely simple in character, consisting in injecting into the peritoneum a definite quantity of the specially prepared virus. Primarily the virus is grown in the spinal cord taken from a rabbit; this, after a suitable interval, is put into bouillon, after which it is ready for use. The

strength of the virus is regulated by the number of days it has been confined in the spinal tissue, this ranging from three to fifteen days. The longer the injection remains in the spinal cord the weaker it becomes, and it is the virus of little strength that is used for the first injection into the human subject.

Beginning with the fifteen-day virus, injections are made at frequent intervals, covering a period of about three weeks, the strength of the virus being gradually increased until the three days' old is finally employed. It is claimed that the use of the three days' virus in the beginning would result in a serious rabietic condition.

In a separate building were confined hundreds of rabbits, Guinea pigs, fowl, etc., all of these being to a greater or less degree under the hydrophobic influence, but no visible result of their inoculation was observed.

Near by is the new bacteriological school, laboratory and hospital. These departments are nearly completed, and when they are fully finished, Paris will contain one of the most complete institutions for the study and treatment of infectious diseases that the world has yet known, ever perpetuating the memory of the great benefactor of his race whose remains lie within its walls.

In front of the entrance to the original Pasteur Institute stands a statue erected in commemoration of the discovery of the now popular treatment of hydrophobia. The figure (see frontispiece) represents a youth in a desperate struggle with a rabid dog. As the human model for this statue, Pasteur selected the boy upon whom he first attempted the use of his new discovery. This was many years ago, but to-day the lad who submitted to what was at that time a dangerous, or perhaps fatal, proceeding, remains as the custodian over the grounds and building which he helped to make famous.

**Chemical Erosion
of
the Teeth.**

Among the most worthy papers of the Congress was one presented by Dr. Leon Frey, of the Paris Dental School, the subject being "Chemical Erosion of the Teeth."

The paper begins with the definition of the term chemical erosion as applying to that process by which the exposed surfaces of the anterior teeth are progressively destroyed, the principal location for such affections being near the gingival border of the teeth, such surfaces presenting an unusually hard polished con-



Pasteur Institute.

dition. The author called attention to the fact that this destructive process had had the careful consideration of many noted writers, each of whom has contributed separate and distinct theories as to the etiology of the condition. Some reference was made to the different terms used in the description of this disease. In America the term abrasion and atrophy are used, the former in connection with a mechanical force, and the latter the result of congenital causes; the latter term atrophy being characterized in many other countries as erosion. The Doctor continued by giving a very careful description of the condition known as chemical erosion. He said that frequently on the labial surfaces of the anterior teeth there occurs a gradual loss of structure, very minute in extent in the beginning, but gradually increasing until frequently the greater portion of the surface of the tooth is involved. The direction assumed by this peculiar structural loss varies quite considerably, in some instances following a line parallel with the cervical border, and taking on a curve similar to it, while in other instances the cavity formed corresponds in a general way to the outline of the surface attacked. One notable feature of this affection is that the margins of the cavity thus formed are clean cut, this being particularly true in the margin nearest the cutting edge of the tooth. When these cavities are examined under a microscope the margins, which to the naked eye appear to be, as already stated, sharply defined, present many minute excavations, these minute depressions no doubt being the seat of the active progressive destruction. The color of the depression corresponds in general to the color of the teeth, but not infrequently it is darker in color, often to the extent of a dark brown or black. Teeth thus affected are usually more or less sensitive when influenced by heat or cold or by the contact of some acid or by mechanical friction. Eroded surfaces presenting a color corresponding to that of the teeth affected are usually more sensitive than those presenting a darker surface. In describing the development of erosion Dr. Frey called attention to the fact that the gum about the affected tooth becomes more or less inflamed and slightly recedes. Following this there is a gradual destruction of the cemental tissue, finally resulting in the exposure of the dentine. If this newly affected surface is examined with the microscope, it will be found that scattered here and there are many minute cavities, these finally spreading and

uniting to form a single depression. At the same time that this outward affection is progressing, the pulp within is making a determined effort at self-protection by the deposition of secondary dentine. Not infrequently, however, the erosion is so rapid in its progress that the pulp is unable to completely protect itself, and finally its death and destruction occurs from the rapid progress of the disease. One peculiar feature of the condition known as chemical erosion is that the number of teeth involved varies, in some instances a single tooth being the seat of two or three separate areas of chemical erosion, while again an incisor and cuspid may be affected while the intervening tooth is free from an attack.

Many theories are advanced in regard to the cause of this structural loss on the tooth surface. There is the chemico-mechanical theory, the chemical theory, the mechanical theory and the vitalo-mechanical theory. These were discussed, the author plainly favoring the chemical theory. In the treatment of the condition, the writer referred to three modes, any or all of which may be used. First, the surgical treatment advised by Dr. Michels, in which the labial glands are involved, and in which he advises the cauterization of the ducts of these glands; the use of nitrate of silver as a suitable cautery for the reduction of the sensitiveness of the surface before the filling of the cavities with gold. Second, a systemic treatment against rheumatism and gout. Third, a local treatment consisting of alkaline washes and acids.

*The State of
Children's Teeth
in Russia.*

Among the many papers of the Congress, no subject was so thoroughly discussed as that of the public care of the teeth. One or two of these papers have already

been included in these articles.

"The State of Children's Teeth in Russia," by Professor Limberg, of St. Petersburg, merits special consideration, from the fact that it supplies much valuable data concerning the subject, data which has been prepared with great care and precision. Referring to the larger cities of the world, it is claimed that fully 80 per cent. of children's teeth are early affected by caries, and that almost the same condition exists in the smaller towns. Referring to the number of teeth thus affected in different localities, the writer said that in his own city the percentage is about 80. In the northern districts the percentage is

somewhat reduced, being about 65. In the south it is 63 and in the west 58.

Professor Sklifasowsky is given the credit of first calling public attention to the premature decay of the teeth of children in Russia, and it is through him that the foregoing reports are recorded. He stated that physicians could do much to promote the training of children in the proper care of their teeth simply by calling the attention of their parents to the subject, and insisting upon the teeth being given prompt attention. He thought that it should be a part of the school government to require healthy dental organs in the pupils, and that this would be greatly encouraged by imparting to the pupils a general knowledge of the causes which produce dental decay, and by a simple training in the manner of preserving the teeth by regular care. These things, he affirmed, should form a part of the teaching of general hygiene in the schools. Among the number of treatments given at present in the public schools, palliative measures and extraction should be replaced by conservative and systematic treatment. A school specialist should be appointed, whose remuneration should be according to the number of pupils in attendance. By the inauguration of such a system, poor children would receive the same care and attention as their more fortunate classmates.

Dr. Ravinowicz made an examination of the teeth of the children in one of the elementary schools in Finland, the pupils ranging in age from nine to twenty years. Three hundred and fifty-eight mouths were examined and 44 per cent. were found to contain teeth more or less diseased. This examination was principally confined to children in good circumstances, but at an examination in another school, composed of poor children only, 17 per cent. of those examined were found to have defective teeth. From this it was argued that the teeth of the poorer classes are less liable to caries than are the teeth of those more fortunate in this world's goods. The Minister of War of Russia, desiring to ascertain if the services of a resident dentist were required, submitted the teeth of four hundred and sixteen pupils of one of the military schools for examination. Forty-five per cent. were found to be affected by dental decay. Dr. Limberg reported the examination of one hundred and thirteen female pupils from eight to twenty years of age, and found over eleven hundred decayed teeth, 78 per cent. being

between the age of eight and twelve years, 86 per cent. between the age of twelve and sixteen years, and 92 per cent. between sixteen and twenty years. In a conference of physicians at one of the sanitary reunions at St. Petersburg the following measures were proposed: (1) To organize regular treatment of the school children so as to prevent as much as possible the occurrence of all dental diseases. (2) To found free dental departments in hospitals where the teeth of all alike will be filled. (3) To engage dental surgeons at once. (4) To teach the teachers and children the utility of caring for the teeth, a duty which should belong to the physician of the school. From the report of Mr. Price, who has studied the teeth of children in the English higher grade schools, the following statements were quoted as showing the regular dental care which is necessary in schools: "First, the onset of caries soon brings about the destruction of the young teeth which are as yet not very strong. Second, continued care of badly decayed teeth in children is urgent, because when these teeth are left to themselves they become a hotbed of contagion for other teeth. Third, the unopposed destruction in the period of physical growth, arrests the regular development of the organism, and prepares the ground for other dental evils. Fourth, the hollows in decayed teeth are very favorable places for the development of bacteria, which, during conversation, may be ejected to a considerable distance, to the possible injury of those present. The dental treatment generally of to-day differs considerably from what was in vogue twenty or thirty years ago, but the attention devoted to the teeth of school children has made little or no progress during that time."

**Dental Services
in the Schools
of England.**

Another paper of the same character, "Dental Services in the Public Schools and Poor Schools of England," was presented by W. J. Fisk, of Edinburgh. These services, he states, are very limited. He, however, hopes for their development in the course of time. The progress thus far made is due to the School Commission named by the British Dental Association.

The public schools receive children of the upper and middle classes. The poor schools include the large district schools, the parish schools, where the children of a parish are instructed not in an asylum of the poor, but in a special place and submitted to special regulations.

The general tendency in the public schools, as well as in the poor schools, is to appreciate the value of these dental services.

— **Instruction
on the Removal of
Dental Caries.**

"The Instruction of the Public on the Need of the Removal of Dental Caries for the Good of the Health," by Ernest Jessen, of Strasburg, was a valuable paper, the substance of which appears in the author's conclusions, which are as follows: While there do not exist in very many countries well equipped State establishments, it is necessary that there should be found in each university town philanthropic men who shall establish at their own expense private schools to instruct students in dental surgery and render them capable of practicing this profession. When this comes to pass the State will soon declare compulsory dental service, at present so unjustly separated from general medicine by the physicians, a protection absolutely justified by the progress of bacteriology. Thus will diminish those cases which bring, by the infection of septic instruments after extraction of teeth, serious diseases and even the death of the patient through the false opinion so widespread that antiseptics in the mouth is useless.

**Dr. Ameodo
on
Implantation.**

On Saturday morning, during the progress of the clinics, Dr. Ameodo was asked to give his opinion in regard to implantation, he at the present time being a firm believer in this method of restoration. "Yes," he said, "I am an enthusiast, and justly so, because I have had success in so many cases, some of which I performed eleven years ago. Some of the methods which I employ and insure success are: First, complete removal of peridental membrane; second, the formation of a temporary mechanical union by driving the tooth to place and making the bone take the shape of the root; the support of the tooth, by ligating with platinum wire, being careful to so adjust this that it will be immovable, and firmly hold the tooth in position until union has taken place."

"What is your theory in regard to the attachment formed?"

"The attachment must be by ankylosis, and may be brought about by osteoclasts burrowing many minute holes into the surface of the root, and into these new bone is deposited from the periosteum."

"Where the natural tooth socket has disappeared and with it the periosteum, how would the attachment be brought about?"

"Under such conditions I do not believe that the operation would be a success, the natural socket with its lining membrane are essential factors in this operation, and an attempt to operate without them means disappointment. In some instances I have attempted to extract implanted teeth and have always found that the surrounding bone has become firmly united to the root, and that it is extremely hard in character, even harder than the dentine of the tooth. I think the principal objection to teeth thus restored is that they lack elasticity, and are liable to suffer more from this cause than any other."

**Treatment for
Chronic
Alveolar Ulcers.**

Dr. Rudolph Weiser demonstrated his method of treatment in cases of chronic alveolar abscesses. With specially constructed scalpels and engine burrs, direct access to the root apex is gained. If the foramen is closed it is opened to admit of free dressing, and a thorough cleansing of the canal is accomplished by flushing both from the apical and coronal extremities. To obtain the full benefit of the agents employed in the destruction of the pathological tissues of the apical space, the entrance to this or the external wound is temporarily closed with a cotton and sandarac dressing, and the needle forced through this, thus damming up the injection. No reference was made to the medicaments preferred, but these did not appear to be so much a feature of the clinic as the methods employed.

**Reconstruction
of
Maxilla.**

Dr. Hahl, of Berlin, exhibited an appliance, a fac-simile of which had been employed to reconstruct portions of the body of the inferior maxilla. The district missing was at the symphysis, and extended laterally to the right and left about three-quarters of an inch. The free extremities of the bone were squared off, and into the cancellated tissue two small gold tubes were inserted, and into these gold posts of suitable size. The intervening space, or that to be reconstructed, was neatly fitted with a hollow gold block simulating the incisal portion of the jaw, and to this the gold posts were soldered. By spreading the natural bone the appliance was readily adjusted. The practical appliance has been worn for some months with considerable satisfaction, a full lower denture assisting in holding the parts together.

THE PRACTICAL SIDE OF A DENTAL EDUCATION.*

Dr. Herman Haupt, Pittsburg, Pa.

This is an age of specialties. Experience teaches that in every department of life one line, and only one, can be brought to a successful issue. The "Jack of all trades and master of none" has become a thing of the past. When your health is seriously impaired and your life is in danger you are no longer satisfied with your family physician. Indeed, he himself will recommend a specialist. One who has made a life's study of the eye, the throat, the ear, the lungs, the stomach, or whatever may be the part affected.

This is true in every profession. The man who chooses early in life his profession, and bends every effort toward the highest attainment in that sphere, is the man who reaches the highest round on the ladder of fame.

To this universal principle the profession of dentistry is not an exception.

By the term profession I do not mean to intimate that I deem it a distinct profession. Dentistry is a specialty of medicine. Like the study of the eye, the ear, the nose, the throat, or the heart, so the study of the teeth is a particular specialty of that study which embraces the whole human system. Sometimes specialties are carried to extremes, as in the case of the old German doctor in my native country. He was an eye specialist. A patient entered his office for treatment. The first question asked him was, "Which eye is it?" The patient replied, "the right." "Oh!" said the doctor, "my specialty is the left eye."

That was a specialty with a vengeance. A specialist who could treat the left eye and not the right would not be the man in whom you would care to entrust your sight. Neither would the specialist in dentistry who knew nothing of the other parts of the human body be competent to be entrusted with the organs which play such an important part as the mastication of all solid foods which enter the human system.

What preparation, then, shall the dental student have before he enters upon his collegiate course? Shall he go as far as Dr. John I. Hart, D.D.S., of the New York Dental School, recommends in his article read before the Eighth District Dental Society of the State of New York, in which he advocates that the student of dentistry should be graduated with the degree M.D., with all which that means, and then pursue the study of dentistry?

Shall this be the rule, or would it be more profitable for

* Read before the Odontological Society of Western Pennsylvania, March 14th, 1900.

him to spend the same amount of time in a number one professional dentist's office, getting something of really permanent and practical value in his future profession?

Much can be said for and against both methods. Dr. Hart speaks from the standpoint of a collegiate professor. Permit me to speak a word from the practitioner's point of view. I hold to the doctrine of previous practical training in the dentist's office. By such training I do not mean that which consists in cleaning cuspidors, running errands, answering the telephone and working in the laboratory.

The student should be completely under the care of the dentist. He should be taught what the dentist knows about dentistry. The mind of the student should be directed along the line of work which he will pursue when he enters college. Unless this is done he will be sure to find himself in deep water when he enters the lecture room and the learned professor throws at him a mass of scientific words. He wonders what it is all about, and quickly makes up his mind he cannot learn dentistry. A dentist who can devote no time to his student has no right to have a student under his charge. He not only does the student an injury, but he fails of his own duty toward him.

Take the student of law, or the student of medicine. They become familiar, while in the office, with the meaning of the names and terms peculiar to their professions; they learn the rudimentary principles and gain a comprehensive idea of the elementary methods of their respective professions. Then upon entering college they are equipped with such a knowledge of their professions, as to be able to grasp the meaning of the lectures from the beginning. I think it ought to be so with the student of dentistry.

Is there not a danger of running to extremes in theory and losing sight of the practical? The way for a student of law to learn to plead at the bar is to take hold of an actual case and throw his whole soul into it. The way for a student of medicine to learn to practice medicine is to take advantage of the absence of the old doctor and take hold of the case; the way for a student for the ministry to learn to preach, is to preach; and the way to learn to practice dentistry is to get a patient who will be tamed, and go to work on him. It may be a hard thing for the client, the layman and the patient, but it is of the highest importance to the student. Now I don't mean to disparage the necessity of a college course, but what I do mean is to make emphatic the practical side of a dental education.

Notwithstanding the argument that students must unlearn so much that they have taken up before they entered college, I see this, that the young man who can fill teeth before he enters college is not the one who sits idle in his office for weeks waiting for a patient after he comes out of college.

I have no quarrel with colleges, but I see the boy who has learned by experience to hold the handles of the plow steady in the stony ground can put to shame the graduate of an agricultural school. I see that the young man who has studied mineralogy in college is unable to detect the presence of silver in the stone wall in front of his home, while his old uncle, who has never gone to college, but has spent his life in the mines of the West, whose eye is trained to detect the sparkle, perceives it at once.

As with every pursuit in life the practical must not be replaced by the theoretical, so in dentistry we ought to guard against the danger of advertising too high a standard for admission to our colleges in literary requirements and placing no stress on the practical. What our colleges need is to send out men who have confidence in themselves. I know a young man who said to his first patient when asked for his bill, "Wait and see if it sticks, and then I'll send in my bill."

What qualifications are necessary, then, to success in dentistry?

1. Practical experience preparatory to attendance at college. Not as an office boy, bringing water, sweeping, dusting or running an engine, but actual training in operating and in the laboratory. Had I not had my five years of actual operating I should not have been able to follow up the college curriculum.

2. He must have a knowledge of those studies necessary to fit one for grasping readily the subjects pursued in the college course. I do not wish to depreciate the value of a literary education, but we must define terms. What do we mean by literary? If you say a classical course in college or an M.D. course, then I say your standard is too high. Time, expense and impracticability are arguments which the mere mention of their names speaks volumes.

3. He must have natural mechanical ability. Man is a complex being. It requires the omniscience of an Infinite mind to create him. It requires an artist of no mean ability to imitate nature. Unless a man has a natural adaptation to mechanics he had best study some other profession. To be a dentist one must be a metallurgist, a chemist, an electrician, a porcelain worker, a rubber worker, a moulder, and a tool maker.

I know men who might work all their lives and never become skilful dentists. They have no natural mechanical ability. Having these qualifications and ability and having fulfilled those requirements the student is prepared to enter upon his college course and profit by it. Let him pass through this part of his preparatory course in silence. He passes his examinations, takes his diploma under his arm, and finding a location, sits him-

self down, and possesses his soul with ease awaiting his first patient.

Thus far we have spoken of him as a student; let us now speak of him briefly as a teacher. And why a teacher?

Because he finds the air full of humdrum and advertisements about the "Painless Dentists." Hand bills, dodgers and cards are scattered along all the streets, and the newspapers are full of their announcements. Even women with baskets in their hands are seen calling from house to house, showing samples of teeth and work, soliciting patronage.

But worst of all the honorable dentist would starve if he would attempt to do work for the prices of these advertising dentists. Then to cap the climax his patients begin to ask all sorts of questions. Have you reduced your prices on gold and amalgam fillings? I see the painless dentists will do work for less than half your prices. I believe I shall go and try them, or why is it that you charge so much more for crown- and bridge-work than these advertising dentists?

Gentlemen, I know of only one solution to the problem. It is to educate the people. We have to do with the public for our patronage. We depend upon them for our business. In justice to ourselves and to our profession it is our own duty to show up every false filling and every flimsy crown. We owe it to our patients to prove to them that they are being flim-flammed and bamboozled by these advertising dentists; that they are given inferior work, and are being charged exorbitant prices for it; that they are being imposed upon by these would-be friends.

Gentlemen, it remains for the dentist who does honest work to instruct the patient. Let the truth be known, let nothing be done in a corner; then will every upright dentist who does genuine work have practice enough and to spare.

MOUTH WASHES.*

Dr. R. G. Burns, of Allegheny, Pa.

By request I made comparative tests of the following mouth washes:

Sanitol, borolyptol, formalid, pasteurine, listerine, glyco-thymoline and phenol-sodique, and compared them with a solution of hydrarg-bichlor.

In all cases material was taken from the same mouths, the proportion determined by the same measure and the medium being bullion.

The time allotted for each culture to develop being the same, 48 hours in an incubator at 37 C.

Tests were not made with the known pathogenic organisms such as the bacillus anthrax, tubercle bacilli or the bacillus of the typhoid fever, but with the germs from the buccal secretions and around the teeth. This was done because we believed it the only practical manner by which to demonstrate the germicidal value of a mouth wash.

As sanitol is the most widely advertised wash at the present time, we thought it expedient to first examine it, beginning with one part in thirty-eight. This was not germicidal, then in turn we made the following: 1—30, 1—20, 1—15, 1—10, 1—9, 1—7, 1—6. Growth was very abundant until we arrived at 1—10; here growth was retarded, too.

To sum up in short, the results are as follows:

Solution.	Retarded.	Germicidal.
Sanitol,	1-10,	1-6.
Borolyptol,	1-7,	1-4.
Pasteurine,	1-7,	1-4.
Formalid,	1-6,	1-4.
Listerine,	1-5,	1-3.
Glyco-thymoline,	1-4,	1-2.
Pheno-sodique,	1-10,	1-6.
Hydrarg-bichlor,	1-50000,	1-25000.

In my opinion phenol-sodique is the best solution given me for examination, looking at it from a germicidal point of view.

* Read before Odontological Society of Western Pennsylvania, March 14th, 1900.

NEUROTIC AFFECTIONS OF INTERSTITIAL GINGIVITIS.*

J. G. Kiernan, M.D.

The chief function of the nervous system, beside its special function, is that of regulating growth and repair. This function, as Marinesco points out, resides even in the neuron or nerve unit. While this function of regulating growth and repair is often connected with control of the vasomotor system, still, as Collins remarks, there are trophoneuroses in which there are no appreciable vasomotor disturbances, and there are any amount of vasomotor disturbances which are in no sense connected with disturbances of nutrition. The nerves regulating growth and repair are called trophic nerves, and the conditions produced by anomalies of their action are, as already stated, called trophoneuroses. It was in the domain of bone growth that anomalies of the function of the trophic nerves were first observed. Brown-Séquard pointed out certain anomalies in the joints of locomotor ataxics; later similar disturbances were observed in the jaws of patients with this disease. Another great neurosis, parietic dementia, presented similar trophic disturbance, as I pointed out twenty-two years ago.† Among these trophoneuroses was one characterized by looseness and falling out of the teeth, alveolar resorption, gingival ulceration and perforation, with, at times, maxillary necrosis. This condition had long been recognized by alienists and neurologists as causing that fall of the teeth which occurs in parietic dementia and locomotor ataxia. As E. S. Talbot‡ remarks, this function of the trophic nerves, however, received but little attention from dentists, albeit its influence has been recognized in dental pathology, in connection with the great neuroses in which gum disorder occurs, followed by loosening of the teeth. Cases illustrative of this condition have lately been described by Drs. Rawl, Baudet§ and Chagnon.|| The case of Dr. Chagnon was that of a man aged 34, who, about ten years previous to coming under his care, had contracted syphilis. Two years later he married and had healthy children. In June, 1895, he was admitted to an insane hospital

* Presented in a symposium on Interstitial Gingivitis, to the Section on Stomatology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5th-8th, 1900.

† *Journal of Nervous and Mental Diseases*, 1878.

‡ *Interstitial Gingivitis*.

§ *La Presse Médicale*, 1898.

|| *American Journal of Insanity*, October, 1899.

under intense maniacal excitement, which subsided to give place to the usual symptoms of parietic dementia. The psychosis followed its course without any remarkable incident until about September, 1897. At this time Dr. Chagnon found that the two incisors, the canine, two premolars and the first molar of the left upper maxillary were very loose. The teeth on being picked out were absolutely sound. The ulceration which affected the surface of the alveoli following the loss of the teeth did not heal. About the middle of September a sequestrum, in which the work of alveolar resorption was not much advanced, became detached. The palate roof forming the anterior border of the maxillary sinus was part of the sequestrum. Two months later the ulceration had healed. In June, 1899, when Dr. Chagnon reported this case to the Quebec Medico-Psychologic Society, all the teeth in the lower jaw were sound. The two premolars and the right canine of the upper jaw were decayed. The second and third left molars as well as the first right molar were loose, but perfectly sound. There existed no alveolar pyorrhea; neither did any trace of ulceration appear, except a small opening which would not admit a probe.

Conditions like this may occur not only from constitutional néuroses, but from disturbances of the cranial and spinal nerves as well. They are frequently noticed after injuries to these nerves, but they may also occur as a consequence of the great functional neuroses like epilepsy, neurasthenia and hysteria. Their part in dental pathology is twofold; they may cause an interstitial gingivitis, which pursues its course without bacterial infection, or they may so weaken the strength of the jaws and gums as to make these into an excellent culture-medium for pyogenic microbes. In dealing, therefore, with the question of treatment, the trophic factor should be taken into consideration, more especially as the structures involved, since they are of a transitory type, are peculiarly liable to its operation.

ABSTRACTS AND SELECTIONS.

AFTER-RESULTS OF TREATMENT OF CARIES BY GERANIUM-FORMOL.*

MM. C. André and G. de Marion.

In presenting the results of treating caries of the third and fourth degree by geranium-formol, a method we introduced several years ago, we have a double purpose. First, to show the success of the method when properly carried out; secondly, to reduce to their real value proceedings which it has been desired to connect with the formol method, and which show that their authors have a complete misunderstanding of the useful properties of this substance for the purpose we are dealing with.

This question of the useful properties of formol is one of great importance, and we feel ourselves bound to accurately determine them. In order to do so let us consider the problem at the commencement, and see what is the condition of a tooth affected with caries of the fourth degree. The pulp has been destroyed and liquefied by putrid fermentation; in its place we find the products of its destruction, and amongst these products a quantity of infectious germs. The condition is much the same as when animal matter is destroyed in contact with the air; the canals are filled with a brown substance of soft consistence, moisture, emulsionized fatty acids, sulphuretted and phosphorized ammoniacal derivatives, and these, especially the latter, which are soluble in water, are disseminated in the dentinal tubes.

Now, when formol is brought in contact with putrid products there results this remarkable fact of the almost instantaneous deodorization of these residues if the formol has been used in sufficient strength. This important property has been observed and noted by all those who have used formol in treating the dental canals, as well as by surgeons who have employed weaker solutions for washing infected wounds; but we were the first to give a rational explanation of these facts founded upon the reciprocal chemical action of formol and of ammoniacal products.† We may repeat in a few words the facts which serve as a basis for this theory.

When equal volumes of formol and ammonia are mixed together much heat is evolved, and the alkaline odor disappears. The two bodies combine thus: 6 molecules of formol +

* Translated from *L'Odontologie*.

† *Le formol géranie en thérapeutique dentaire*, par G. de Marion et C. André. *Compte rendu du Congrès dentaire de Paris*, Octobre, 1897.

4 molecules of ammonia = 1 molecule of hexamethylenamine + 6 molecules of water. The reaction is rapidly effected, and we are sure that it is complete at the end of a quarter of an hour. The ammonia is thus replaced by the hexamethylenamine, which is a white powder very soluble in water and in alcohol, non-volatile, neutral, and which is neither an irritant nor caustic.

If instead of existing free the ammonia be combined with an organic acid, such as acetic, malic, lactic, or citric acid, the same reaction occurs, setting free the acid. For instance, with acetate of ammonia the action may be thus expressed: 6 mol. formol + 4 mol. ammonium acetate = 1 mol. acetate of hexamethylenamine + 3 mol. acetic acid + 6 mol. of water.

One of us has made use of this reaction in successfully administering spirit of mindererus as an antidote in a case of poisoning by formol.*

And if instead of ammonia we have to do with putrid bases, free or combined, the same thing happens; there is always a combination with the formol, a resulting neutralization of the ammonia base and a distinct transformation into products more condensed, inodorous, non-volatile, and deprived of all irritating or caustic action.

It must be well noted that up to now the question has not been as to the microbicide action of formol; the only effect considered is a purely chemical one of changing volatile and foetid ammoniacal derivatives into more condensed, neutral, fixed and odorless products of a constitution analogous to hexamethylenamine, although having more complicated formulæ.

This is not all, for the products of disintegration of the pulp are not formed only of ammoniacal derivatives; there are fatty acids besides, arising from the splitting up of albuminous substances and which give that peculiar soft viscous consistence to the contents of the canals; lastly there are gaseous products, in small quantity, certainly, principally formed of sulphuretted hydrogen and carburetted hydrogen.

Practically speaking, these fatty acids seem to have no distinctive noxious influence, since they are non-volatile and their chemical energy is very feeble; but we think that by the viscous consistence which they render to the pulp residue they can, by obstructing the microscopic opening of the dentinal canals, oppose a barrier to the diffusion of formol and delay its action. What confirms us in this opinion is the much greater rapidity of the disinfecting action of formol since we employed it in an alcoholic solution the same strength as the aqueous ones.

We may recall, indeed, that the solution we have employed

* *Journal de pharmacie et de chimie*, July 1st, 1899.

since October, 1897, under the name of formyl-geranium has the following composition:

Formic aldehyd.....	40 parts.
Essence of geranium, re-distilled.....	20 parts.
Alcohol, 80 degrees.....	40 parts.

That is to say that our geranium formic liquid has a strength of formic aldehyd as great as that of the commercial formols and contains a fifth of its weight of pure essence of geranium.

Now, alcohol and essence of geranium which separately have a very marked solvent action upon fatty acids coöperate in a very solvent manner by their association in the general act of disinfection in disintegrating and dissolving the viscous stuff which lines the root walls and obstructs the openings of the dentinal canals. Besides, alcohol by its own diffusibility in moist places helps the diffusion of formol in the fluids of the dentin.

There remain the gaseous products and principally sulphuretted hydrogen and formene upon which our liquid has no chemical action of absorption. But these products are in small quantities, for they are set free as fast as they are formed. Alcohol, however, and the essence of geranium, which in a general way feebly dissolve gaseous bodies, can facilitate their departure by mixing with the fluids of the tooth.

Now that we have seen how the principal constituents of our combination help to produce perfect disinfection of the root walls and the dentin, it remains to speak of their sterilizing action.

When the destruction of the putrid products is obtained, and only at this moment, the antiseptic work begins. The formol, the diffusion of which is very rapid in the conditions of the spot where it is placed, and the essence of geranium itself, helped by the alcohol, penetrate into the canalicules and destroy all the pathogenic germs. We will not insist upon these questions of diffusibility, no more than upon the considerable antiseptic powers of formol and essence of geranium, antiseptic powers much superior to the necessity caused by the germs. We have established elsewhere these important points, and they are too well known now to require repetition.

The time has come to say something of the methods to which we alluded above.

If one is well imbued with this idea that the antiseptic action of formol is subordinate and subsequent to its disinfectant action, that the one can only happen when the other is achieved; if, moreover, one recollects that the disinfecting effect of formol is (according to the reactions we have stated) proportionate to the quantity used, it becomes unnecessary to use any other argument to justify the use of a large dose of formol in dental

dressings. We must then repudiate every formulæ in which a weak dose of formol appears under the vain underestimated excuse of its great antiseptic power; as for us, we have given to our solution its minimum strength.

After weak solutions of formol there is another form under which it has been desired to use it in dental therapeutics. We wish to refer to powders or pastes containing formol in a nascent state (?).

We have analyzed a preparation of this kind; it contained oxid of zinc, burnt alum, anhydrous sulphate of lime, eugenol, and an infinitesimal quantity of trioxymethylene. According to the instructions which accompanied it this powder should be mixed into a paste with a liquid which was glycerine, and used as a unique application to make the most complete filling possible in a cavity under a permanent stopping. Experience has shown a short time afterwards the inadequacy of this mode of treatment.

We do not know if the owners of this powder attribute its virtues to formol; for our part we are sure that it does not intervene, because of its insignificant proportion and its immediate absorption by the putrid products largely in excess. It must, however, be recognized that there was a relative success, and that for some time it caused an arrest in the progress of caries.

The explanation of this fact seems easy to us when we remember the dehydrating qualities of sulphate of lime and burnt alum. It probably happens that these powders absorb by degrees the water contained in the dentin, and as putrid fermentation requires the presence of water, there was arrest of this fermentation and a relative cessation of the morbid phenomena. But there was only an arrest and not the destruction of germs nor disinfection, and when, by a mechanism that we do not inquire into the dehydrating properties of the powders were satisfied and moisture reappeared in the dentin, fermentation recommenced and with it troublesome symptoms.

Nothing like this occurs with our method applied in the way we have several times described already, and which we have by successive steps brought to perfection. Thus, whilst at first we were obliged to use six or eight dressings for a large tooth deeply infected, we have reduced this figure by 50 per cent. Then the interval between two dressings which we fixed at two days has been brought down to 24 hours by the use of alcohol as the vehicle for the formic aldehyd and essence of geranium, and again it may be said that this interval much surpasses the necessary time, and could be reduced by some hours if the necessity of proceeding quickly should occur in practice.

Finally, let us recall what we said in our first communication with regard to the cleaning of canals; this cleaning is not an

indispensable condition, and if in consequence of irregular conformation the ends of the roots cannot be reached and cleansed, formol modifies the pulp débris in such a way as to render them incapable of producing a later infection.

We have not introduced any modification of our method during the last two years. We may briefly say that it consists in making dressings at intervals of 24 hours until the last one taken out shows not the slightest trace of fœtor, but on the contrary preserves in absolute purity the smell of the geranium. For these dressings strands dipped in the formol-geranium are introduced into the canals and pulp chamber; the whole is covered in by gutta-percha.

CONCLUSION.

Let us sum up in a few lines what we have just said and what we have said in the former communications upon the use of formol in dental therapeutics.

Geranium-formol realizes as exactly as is possible the recognized theoretical conditions for the treatment of teeth with dead pulps.

1st. It is the most powerful disinfectant known. It destroys the products of pulp fermentation, combining with and neutralizing them. This effect is shown by the complete and definite deodorization of the cavity after two or three dressings.

2d. Its antiseptic power is superior to that of sublimate.

3d. It is extremely diffusible in moist places. By means of this valuable property it acts not only on the root walls up to the apex, but even in the dentinal canalicules as far as the periphery of the tooth.

4th. When geranium-formol is placed experimentally in sufficient quantity among putrid products it deodorizes them instantly. This experience shows that dressings may be made with as short intervals as may be desired, one hour if the need for rapidity occurs in practice; generally these dressings are applied on several consecutive days.

5th. Geranium-formol does not in any way injure the hard tissues of the tooth, and does not set up any troublesome condition (periostitis) in the membrane.

6th. Geranium-formol shows the advantage of a lasting result as compared with absorbent and drying powders. These only act by causing a more or less perfect dessication of the tooth, but this dessication is only temporary, and when the powders become hydrated pulp fermentation recommences with the train of symptoms which it excites.

British Journal of Dental Science.

A FATAL CASE OF HÆMOPHILIA.*

Thomas Fillebroten, M.D., D.M.D.

A patient, male, aged twenty-five years, was suffering from an alveolar abscess on the distal root of the left inferior first molar, which was discharging through a fistula on the side of the face near the lower border of the under jaw. The abscess was of three years' standing. The constant discharge from the abscess had become so exceedingly offensive that the patient felt he must have it relieved. He was brought to me by Dr. L. G. Forrest for operation, April 26th, 1899.

Some months previous Dr. Forrest had consulted me about the case, and had given me quite a full description of the trouble. I then advised that when the patient decided to have the tooth removed, he should take a course of astringent tonic for some two weeks just previous to coming for the operation.

I based this advice upon the fact that I had in several cases pursued this plan with my own patients, and the best of results had followed; and had the state of the blood in this case been the only condition unfavorable, it evidently would have proved sufficient, for the blood proved to be readily coagulable, forming a clot firm and disposed to be adherent; and had the arteries had any contractile power, I am sure success instead of defeat would have been the result.

On Wednesday, April 26th, I extracted the roots of the first and also of the second molar, all of which were decayed to the gum and quite loose. The roots were removed without difficulty. The bleeding was somewhat profuse, but not excessive, and soon ceased. After a time he went out a short distance and took a light lunch. He returned to my office, and in about an hour and a half after the operation the blood commenced to flow again.

I plugged the sockets with cotton and Monsel's persulphate of iron, but I could not control the bleeding. I then took a plaster impression of the under jaw and made a hard rubber jacket plate, which, when applied with a layer of gauze under it and held in place by a firm head bandage, controlled the bleeding apparently for six hours or more, when it had to be readjusted, as the blood had worked its way out under the compress.

He then went to the Elliott Hospital, in order that he might have careful nursing and timely attention.

The second adjustment of the splint held the blood in check for about six hours more, when the blood flowed freely again.

At noon of Thursday, the 27th, as the upper teeth had become quite sore, I concluded to try the Harvard dental splint,

* Read before the American Academy of Dental Science, December 9th, 1899.

and with the assistance of Mr. Curry, one of the students of the Harvard Dental School, made a jacket and applied the splint at five o'clock P. M. This seemed to promise success, as it held the blood in check for twenty-two hours, when this also failed.

I then packed with gauze and cotton, holding it down by the upper teeth. I renewed these packings every five or six hours as that was as long as any one application would serve; and the large amount of clot that came from the mouth and throat when the packings were removed showed plainly that the flow of blood had only been retarded and not stopped.

On Sunday, April 30th, I decided to try the actual cautery, and at about three o'clock, with the assistance and advice of Dr. F. W. Rice, I thoroughly cauterized the bleeding surface, which was confined to the edge of the gum opposite the mesial root of the first molar on the lingual side. A firm clot covered the other parts of the wound and completely stopped the blood. The cautery, supplemented by nitrate of silver, completely checked the flow of blood, and we thought the victory won. In about an hour the blood-pressure removed the eschar, and the blood again flowed as freely as ever.

I resorted again to the compress, but had more difficulty in controlling the hemorrhage. At eleven o'clock P. M. I called Dr. Brewster, who advised with me, making valuable suggestions and rendering assistance, which kept the trouble fairly well controlled through the night. Dr. C. A. Porter was also present, and at his suggestion and advice I gave the patient a full course of chlorid of calcium. The effect was not so favorable as we had hoped. Previous to this I had administered ergot in full doses for nearly twenty-four-hours, with negative results.

On Monday, May 1st, at noon, acupressure was resorted to. I secured the services of Messrs. Wentworth and McHale, dental students, who kindly volunteered for the service, and faithfully and skilfully maintained pressure during the afternoon and night, but could not succeed in wholly arresting the flow.

On Tuesday, May 2d, I was called at two o'clock A. M., as the patient seemed sinking, but it proved to be fainting; and as he seemed too weak to bear more manipulation, the packing and pressure were not resumed.

The only hope now lay in the natural cessation of the flow of blood, as had occurred before when the loss of blood was excessive, and as frequently occurs in similar cases. But it was of no avail, and at 1.30 P. M., Tuesday, May 2d, the patient passed away, a victim to the loss of blood. Blood continued to flow from the wound after the pulse at the heart had stopped and the breathing had nearly ceased.

On Monday evening the infusion of a saline solution was considered, and Dr. Brewster was present prepared to perform

it. Dr. Porter was also present. Upon consideration, it was deemed inadvisable, as it would add another wound, and the salt would make the blood less coagulable and offer no compensating stimulus to the nervous system which would serve to contract the vessels. The lack of contractility of the arteries seemed to be the main trouble, as the blood formed a very firm clot.

The undertaker gave me the following statement: "I found the arteries in a very abnormal condition. Neither myself nor my assistant could find any trace of the femoral artery or its sheath, and after repeated attempts, gave it up and sought for the left brachial artery, which I found.

"The division of the artery occurred several inches above the normal point. There was hardly a semblance of a sheath, and an almost total absence of the middle coat, which made the artery hardly distinguishable from the vein.

"The walls of the artery were so tender that the pressure of a finger was sufficient to tear it open, whereas in a normal case this is impossible, it often requiring the aid of a scalpel to extend the opening so as to admit the embalming syringe.

"The embalming was done less than six hours after death."

Following is the history of the patient: Paternal grandmother suffered from excessive nose-bleed. Had nares plugged to stop it more than once. Patient's father did not inherit the conditions. Patient's mother inclined to bleed freely.

At seven years of age he suffered from a slight injury to his left knee, which caused a scratch two or three inches long, but not through the skin. The part swelled enormously until the skin along the line of the scratch burst open. Bleeding followed, but not profuse, which soon reduced the swelling. It was more than a week before the bleeding ceased.

When about twenty-three years old he had a tooth extracted, and for nine days the blood flowed constantly, but not enough to keep him from his work. The same year his lip was injured quite severely. It swelled excessively, and bled for three weeks at times before it could be stayed. Ice with a spring clip was the last thing applied. He bled almost to collapse.

When twenty-four the patient had a portion of a tooth hanging by a little gum tissue. It was removed by the pressure of a finger. The bleeding continued long and was stopped with difficulty.

The more noticeable features of this case are the peculiar conditions of the arteries and the progressiveness of the disease. When a baby there was but little trouble, but at seven years of age the disease had become serious, and gradually increased until at twenty-five it proved irremediable.

International Dental Journal.

DISEASES OF THE ANTRUM OF HIGHMORE: A
STUDY OF ONE HUNDRED AND FIFTY
CASES.**L. C. Cline, M.D.*

My apology for presenting the often discussed subject, "Diseases of the Antrum of Highmore," is the confusion among observers regarding the etiology and pathologic conditions found in these cases, as well as the discrepancy of opinions as to treatment. After an experience with 150 cases, 140 of which were in my own practice, I feel warranted in calling attention to a few points noted under my observation.

My cases have all occurred between the ages of 20 and 70. Forty-eight occurred in females, and 102 in males. The disease did not predominate with any particular class of people—doctors, lawyers, ministers, teachers and tradesmen—in fact, all the callings and conditions in life were represented. Of the 140 cases, 6 had sarcoma, 3 in women and 3 in men. Two of these were operated on by the late Dr. J. W. Marsee, and in one of them the entire superior maxillary bone was removed, the other only partially, which gave only temporary relief from pain. The other four, when apprised of the nature of the disease, refused operation and finally succumbed to the malady. These cases all gave a history of suffering from their teeth prior to the development of the disease, which fact leads me to believe that the long-continued irritation from an abscessed root discharging into the antrum is a factor in the production of sarcoma.

Four cases of empyema of the antrum have come under my observation. The symptoms were the same as those described by Dr. D. B. Kyle in his cases—that of escaping gas from abscessed and carious teeth into the antrum, producing a sense of nasal pressure with paroxysms of a dull, heavy, sickening headache. These were all relieved by extracting or treating the diseased teeth.

The etiology of my cases could all be fairly well traced to three sources, viz.: dental, nasal and la grippe. As nearly as I can estimate, 50 per cent. were due to diseased teeth, 40 per cent. to sequelæ of la grippe and teeth combined, and 10 per cent. to ethmoiditis and the various nasal obstructions. Probably a greater percentage should be assigned to la grippe complications. My estimates have been placed on the clinical history as given, which is often misleading.

Twenty cases were acute, complicated with influenza, and all subsided without operation. Of the other 120 all were chronic,

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suppurative cases of from two months' to seven years' standing. Operation revealed a marked swollen edematous condition of the mucous lining of the antrum in 16 of these. In none did I find true polypoid growths, as described in some of the text-books. Curettement was done in 6, and packing with iodoform gauze in 4 cases. The others yielded to hot astringent douches. Five cases were bilateral. Of the rest, 75 per cent. were on the right side. In trying to account for this, dentists and dealers in dental supplies tell me that a large percentage of the teeth and plates that are broken occur on the left side, which goes to show that there is more biting and chewing on the left side, thus favoring decay on the right. Ethmoiditis was observed as a complication in 11 cases, all of which were preceded by la grippe. Two cases that were carefully diagnosed would not submit to operation, and, so far as I know, they are still suffering from the disease.

The zeal of some of our dental brethren in crowning, building and maintaining bridge work, I am led to believe, is a cause of empyema, in some cases at least. The thought was suggested in 6 under my observation, having had to remove diseased roots under expensive bridge work before a cure could be effected. A purulent discharge from the antrum, when due to dental origin, is carious and fetid, but when its cause is from other sources, like the ethmoid and frontal sinuses, it is creamy and almost without odor.

For diagnosis I rely principally on the use of peroxid of hydrogen and the position of the head. After cleansing the nose and cocainizing, a few drops of peroxid are injected with a small syringe armed with a canula, the point of which is bent at a right angle, and carried into the ostium maxillary. If pus is present, it will be manifest by the characteristic reaction. In cases of nasal obstruction or a deflected septum, I make an exploratory puncture with a small, sharp-pointed drill, through which peroxid is injected.

Illumination is less reliable and more complicated than the above method, although it is a useful aid in determining the condition of the roots of the teeth. I have come to believe, after trying the different methods of opening the antrum, that entering through the alveolar route is by far the best, for the reasons that the after-treatment is less painful, and the drainage is more complete, and the patient can, with greater ease and facility, keep the antrum clean.

Of the 118 cases operated on, all but two had one or more carious teeth, or they had already been removed. So that the objection to opening through the alveolar process on account of the teeth was reduced to a minimum.

My experience in puncturing the antrum from the outside under the ginglymoid fold has not been flattering. In every instance I had a swollen cheek from purulent infection from the

discharge. The plan now followed in operating is to first enter the antrum with a small, pointed drill run by an electric motor, then insert a bit of cotton saturated with 10 or 20 per cent. solution of cocain well through the hole, which soon enables me to enlarge the opening to any required size. When a tube is required to keep the hole open, or food from entering, I use one made from silver wire turned to form a shoulder on the end to prevent its entering the antrum. The tube I now show you will remain where it is placed without anchorage, and the patient can remove and replace it at will. Some cases do better without a tube, using a plug of cotton instead, frequently changing it.

The time required to cure a case depends on the size of the opening, and the thoroughness of the operation in removing all the carious teeth and nasal obstructions, together with thorough cleansing, curetting, packing and stimulating to healthy granulation. My cases have varied in the time required to effect a cure, from three weeks to one year, the average being from three to six months. Many cases will relapse and require reopening, after closing, on taking cold. For this reason, tonics and attention to the general health must not be neglected.

My practice has been to have the antrum thoroughly cleansed twice a day until the discharge lessens, then once daily until the discharge ceases, first using a little peroxid in water, followed by a solution of hot boric acid, or salt water; once or twice a week a solution of silver nitrate or iodine of sufficient strength to make an impression on the mucous membrane is injected. In the boggy, swollen, edematous cases the best results were obtained by using hot water injections three times a day with a little boric acid or salt added.

The so-called dry treatment of insufflating powders has not come up to expectations. The best results observed from the use of powders were by first washing the antrum clean, and then covering the membrane with equal parts of finely powdered boric acid and lactopectin.

In tabulating cures, I find it difficult to keep track of all cases, as they are scattered over a large territory, some changing location. But, from my knowledge of the cases, a large percentage have been cured.

To summarize: The points I wish to emphasize are:

1. The great number of cases that are traceable to la grippe.
2. The absence in my cases of polypoid growths.
3. The greater predominance on the right side.
4. The importance of a good-sized opening, and the removal of all diseased teeth.
5. In my experience, to open through the alveolar process is by far the best.
6. Hot douching to relieve the edematous conditions.
7. The dry treatment alone after a first washing has not been a success in my hands.

FOOD STUFFS IN GOUT AND RHEUMATISM.

William Henry Porter, M.D.

As is well known, all food stuffs are commonly placed in two general classes: the vegetable and the animal. It is further known that they both contain all the constituents essential for maintaining life. They both contain mineral salts, saccharine compounds, fats, proteids, and the iron- and phosphorous-bearing substance known as nucleo-albumin. Neither one, however, contains these five groups of compounds in just the right proportion for the highest type of nutritive activity. The animal class, however, comes nearest to this perfect requirement, as exemplified in milk. But milk is defective in nucleo-albumin; it also contains an excess of the saccharine and fat constituents as compared with the proteid elements. Therefore it is not absolutely perfect. With the vegetable class there is a superabundance of the starch and saccharine elements, and a decided deficiency in the fats, yet they all contain a liberal proportion of the proteid constituents, and in many instances a high percentage of the nucleo-albumin. The latter is especially true of the green vegetables and legumes. In some of the vegetable classes the proteid constituents are so large, as compared with the starch that by the addition of a certain amount of oil, as is done by the Chinaman to his rice, very good results, so far as maintaining health and the development of robust constitutions are concerned, can be secured from a purely vegetable diet. All this goes to prove that man can live either upon a vegetable or an animal diet. It further shows that disease can be cured by placing the patient upon either a vegetable or an animal diet.

There are other factors that must be taken into consideration before we decide which is the best and the most available diet in the treatment of disease. The digestibility must not be lost sight of. The adaptability of the system to this or that form of diet must also be considered. And last, but not least, the tendency of this or that kind of food to excite putrefactive fermentation in the intestinal canal must not be lost sight of. Again, certain foods are more likely to cause undue irritation to the mucous membrane in their passage through the alimentary tract. All these important factors are too often neglected.

As to the digestibility, it has been proved beyond a question of doubt that the animal foods taken as a class are much more easily digested, absorbed, and assimilated. This is explained by the fact that the molecular structure as found in the animal kingdom is much more simple than that formed in the vegetable class. It is monomeric in its construction, while that in the vegetable is multiple or polymeric in its construction.

Hence the greater ease with which the animal food can be digested. On the other hand, this ease of digestibility renders the animal class more prone to produce suboxidation than the vegetable class, unless the quantity ingested is restricted so that it is continually kept well within the oxygenating capacity of the system. When this is done, the digestive powers are conserved, the highest grade of nutrition is established, and there can be no danger from suboxidation. On the other hand, the suboxidation state can be made to give place rapidly under an animal diet to one of perfect oxidation. This accomplished, we have our rheumatic or gouty condition well in hand, so far as the dietetic management is concerned. Diet alone is not going to cure the difficulty, but nature must be assisted in this work by the judicious addition of suitable medication, so that she can make the best use of the well-regulated diet.

The vegetable food stuffs, on the other hand, in consequence of their polymeric construction, are much more difficult to digest, to absorb, and to assimilate. Hence they are not so economic. Yet there is not so much danger of exceeding the oxygenating capacity of the system when on the vegetable diet, because such a large proportion passes through the alimentary canal undigested and unabsorbed. Thus we find a perfect explanation for the good results that are often obtained by placing the patient upon an almost exclusive vegetable diet, or when a change is made from a liberal animal to a liberal vegetable diet. This is especially true when the patient cannot be controlled as to the amount of food taken, or where the physician does not fully appreciate the necessity of keeping the amount taken well within the oxygenating capacity of the system. Under these circumstances nature does what the scientific physician should be able to accomplish in a much better manner by regulating the quantity ingested.

The indigestibility of the vegetable class, and the large amount of waste material to be discharged in the fæces, while it may have a tendency to loosen the bowels, is always a source of danger, because it often produces undue irritation to the mucous membrane of the intestine. If this occurs, a catarrhal condition is excited with its hyperproduction of mucus, thus forming a favorable nidus for the growth of the abnormal microorganisms that may, and often do, infest the alimentary canal, thus exciting and maintaining an undue amount of putrefactive fermentation. The saccharine elements in excess are further very prone to undergo fermentative processes, thus causing irritation and helping to produce this undue putrefactive fermentation of the proteid constituents. Furthermore, all the cane sugar has to be converted into glucose before it can be absorbed, which is an excessive tax upon the digestive energy. If all these unpleasant results are not induced by the vegetable diet, it may, and does in many instances, yield some very satisfactory results.

Fruits, as a class, should be avoided, simply because of their strong tendency to start up fermentation and thus prevent the utilization of the more substantial kinds of food products, which must be perfectly utilized if we are to overcome these pathological conditions.

The adaptability of the system to various kinds of diets must not be overlooked in this important study of the diet. There is, as we have already found, no question about the ability to live on a great variety of food products, but it often takes the system a long time to adjust itself to forms and kinds of food that it has never been accustomed to utilize. This is especially true in relation to the vegetable class that is so difficult to digest. Once the system has become accustomed to the utilization of them, very good health may be maintained by their use. The best results, however, are secured by the use of the animal as against the vegetable. To secure the highest results under all circumstances requires the utilization of both the animal and the vegetable in combination; in other words, a well-regulated mixed diet, but one in which the animal class always preponderates.

The diet should at all times be free from an excess of the saccharine elements and all substances that easily tend to excite putrefactive fermentation. It should be one that is as little irritating to the alimentary canal as possible. The plain diet largely composed of the animal class is little likely to undergo putrefactive fermentation. With it there is no undue irritation to the alimentary canal. Thus we reduce to the lowest degree the growth and activity of the putrefactive fermentative micro-organisms that may gain access to the intestinal tract.

If at the same time we reduce the total quantity of food ingested so that it will never exceed the oxygenating capacity of the system, we have obliterated or removed the two main predisposing factors in the production of our gout and rheumatism. If we add to this suitable medication to augment digestion and absorption, and stimulate glandular action in general, many cases will make speedy recoveries that otherwise would become chronic and incurable.

While all this reads with perfect ease, it is no simple task that we assume when we undertake to properly regulate the diet, for we have the prejudices of ages to overcome—the inherent tendency of humanity to eat what it likes, regardless of the consequences; also the idiosyncrasies of each individual must be considered and due allowance made for all these varying conditions.

When all this has been accomplished, the variety and the quantity of the food properly adjusted, we find that the diet that is good for the one condition is equally good for the other. The main thing to be accomplished in all cases is first to get the

quantity well within the oxygenating capacity, and then aid the system to properly digest and utilize the food pabulum introduced into the system. Then, if recovery is within the realm of possibility, it is bound to speedily follow. Speedily does not of necessity mean in a few days or weeks, but as compared with the time that it has taken to bring about these pathological changes.

New York Medical Journal.

WOMAN'S BRAINS.

Mr. Alexander Sutherland writes in *Nineteenth Century* for May upon "Woman's Brains." Mr. Sutherland points out that as the result of recent investigations it is proved that the average man has from ten to twelve per cent. more brain weight than the average woman, but in proportion to the weight of her body woman has six per cent. more brain than man. Her average runs about fifty ounces of brain for every pound of weight in her body, while man, in proportion to his body, has only forty-seven ounces. But on the whole, he says, that "however or wherever we make the inquiry" it is always seen that when men and women are of equal height and weight the men have something like ten per cent. more brains than women. The average brain of a man genius is only 9.3 per cent. more than that of the ordinary individual. The average woman is to the average man as the average man is to the man of genius, if the weight of brains were to settle it. Lest the average male should be inclined to vaunt himself over his sisters, Mr. Sutherland tells him that even if it were demonstrated that the average woman, because she had ten per cent. less brain weight, had therefore ten per cent. less intellectual capacity than the average man, it would have to be remembered that even then ninety per cent. of the women are the equals of ninety per cent. of the men, and this would seem to imply that the average man has to recognize about forty per cent. of the women as his superiors in intellect.

HEALTH THOUGHTS.

Isn't it queer that some people care more for what they eat than for how they feel?

The degree of health produced by a certain amount of food measures its value to some, but the majority asks how it tastes!

The question usually is not how much good is this food going to do me, but how pleasant will it taste for an instant while it is passing through my mouth!

Why is it if eating two good meals a day of nourishing food will keep a person in the highest degree of health that most people will insist upon filling their stomachs to bursting three, four or five times a day?

Queer, too, that most people will argue for an hour that children of necessity must have worms, but will not consent to a simple regulation of a child's diet—as an experiment, if nothing more—and see what effect it has on the aforesaid worms!

Another strange thing is that when people know that re-breathed air is an active poison, that many have a horror of pure air in their homes, and especially in their bedrooms!

Strange, too, when a physician in an entirely disinterested way tells a woman that in order to use all of the lung tissue God gave her she must make certain changes in her mode of dress, that in nine cases out of ten she will listen to the advice of her dressmaker instead!

Also queer, that while all people have a horror of disease, they are so long in finding out that the only sure way of avoiding disease is by keeping every organ in the body perfectly well!

So queer that while we are all so deathly afraid of germs, microbes, bacteria, etc., we live in such a way that our bodies become deficient in resisting power to these same germs, and when they are present, expect in some miraculous manner to have them expelled!

Queer that we so enjoy talking about disease, and plasters, and poultices, and are so apt to forget "the contagiousness of health" and that "health and cheerfulness mutually beget each other!"

Queer that while we all want so much to enjoy life, with all its comforts, pleasures and happinesses, we are so apt to forget that upon health these all depend, that

"Health is the vital principle of bliss,
And exercise of health."

Syracuse Clinic.

THE PINS IN ARTIFICIAL TEETH.

Why do they pull out so easily? Twenty-five years ago the degeneracy in the manufacture of artificial teeth began. It was one of the coincidences of the curse of vulcanite. Anything was then thought good enough for a plastic. But the fact is, the rubber is not so much to blame as the tooth-material. The pins come out of the porcelain. Twenty-five years ago (see *Canada Journal of Dental Science*, Vol. III, page 161) Dr. C. Brewster read a paper before the Montreal Dental Society on this subject, in which he described his experiments in pulling out the pins of American and English teeth, in which, in the former, the teeth went to pieces, and the pins came out whole and perfect, and in the latter the tooth could not be broken by the same strain, and the pin could not come out, but was broken off by sheer force close to the porcelain. It is well known that if we want to separate a gum-block, it can be divided with a pair of scissors easier than a caramel! The American artificial tooth-structure of thirty years ago was as much ahead of the modern in point of strength as a piece of steel is ahead of a piece of tin.

Dominion Dental Journal.

RESUSCITATION AFTER SUFFOCATION, CHLOROFORM POISONING AND ELECTRIC SHOCK.

Dr. J. Prus, in *Wiener Klein. Woch.*, arrives at the theoretical conclusion that healthy human beings who are suddenly apparently killed by asphyxiation, electricity, chloroform, or other poisons, can be resuscitated by artificially imitating the conditions in which higher organisms are accustomed to live. These conditions can be simulated by artificial respiration and by an artificial circulation of blood. The former may be accomplished by the various well-known methods, while Prus found in his experiments that the circulation can be artificially stimulated most closely and most certainly by rhythmical pressure of the finger upon the exposed heart, for only in this way is it possible to evoke a systole and a diastole of the heart. By experiment, the author proved that his theory works in practice. He was able to resuscitate animals after suffocation after an apparent death of an hour by means of massage of the exposed heart, artificial respiration, and an infusion of normal salt solution into the femoral artery. Seventy per cent. of his experiments were successful. Of twenty-one experiments with animals in which the pulse and respiration were stopped by chloroform, the author successfully resuscitated sixteen, or seventy-six per cent. In some instances an hour had elapsed from the moment of death to the time of beginning the massage of the exposed heart.

Dr. Prus has found that animals killed by electricity can be

resuscitated by his method of exposing the heart, practicing cardiac massage, and artificial respiration. His experiments have led him to believe that persons killed by lightning or severe shocks of electricity die from cardiac paralysis. His conclusions on the entire series of experiments are that an important element is massage of the heart exposed by resection of a rib. This manœuvre must be undertaken at the latest a minute and a half after death by asphyxia, three to four minutes after poisoning by alkalies, and three to nine minutes in chloroform poisoning. The author has found the human heart still responsive to this method of massage two hours after death by hanging, and urges that it be tried in all suitable cases when other means of resuscitation have proved fruitless.

New York Medical Journal.

A UNIVERSAL ANTIDOTE.

A writer in a recent number of the *Pharmaceutical Era* emphasizes the use of milk as a universal antidote applicable to most cases of poisoning. By its fatty matter and its casein, it protects the mucous membrane against the corrosive action of acids, alkalies, and other caustic or irritant substances. The chemical rôle of casein is here very remarkable and very valuable. It is able to fill the double part of acid and of base, in the presence of compounds with which it is brought in contact. It not only coagulates under the action of acids, by combining with them, but it also yields a precipitate with most mineral bases, forming insoluble caseates. If precipitation does not immediately take place with a product having a given reaction—acid or basic—this precipitate will appear through the intervention of another substance of contrary reaction. Dr. Crowzel proposes to add to the milk 5 per cent. of borate of soda. This salt is not toxic, and is employed because it precipitates as insoluble borates all the mineral bases, except harmless or slightly poisonous alkaline bases. The poison acids decompose it, seizing on the soda and setting free boric acid, which is less poisonous and less soluble. The mixture of borate of soda and milk is an antidote at once neutralizing and precipitant. It can be used especially with mineral poisons, although we must except cyanids, ferrocyanids, ferricyanids, chlorates, nitrates, arsenites, arseniates and oxalates. Of these the first three are precipitable by a mixture of ferrous and ferric sulphate, while chlorates and alkline nitrates cannot be precipitated by any offensive reagent. Arsenites and alkaline arseniates can be eliminated by magnesia. In any case no risk is run, and good may be done by giving milk with borate of soda to one who is thought to have been poisoned. It is the first thing to be done after emptying the stomach. If arsenic is suspected, magnesia should be given. If there are vegetable poisons, the best antidote is a 1 per cent. solution of permanganate of potash.

Medical News.

THERAPEUTIC CYCLES IN LARYNGOLOGY.

Dr. Beverley Robinson states that just as there are cycles in the therapeutics of most diseases, so there have been in the treatment of nasal affections. Twenty years ago the diathesis underlying certain manifestations in the nose was frequently much more important and needed treatment rather than the nasal disease itself. The constitutional condition of the patient was the cause of the nasal symptoms and it was only by improving this that any permanent relief could be obtained. Although many changes have come in rhinology during the last twenty years, there seems no reason to change this opinion except, if possible, to emphasize it more strongly than ever. There is undoubtedly more danger in operations upon the nose than has been thought. Not only is there a certain amount of immediate danger, as reported deaths show, but there is a large risk of serious after-results from useless operations. Pathways for the entrance of germs are frequently provided by the mutilating effects of operations, and the physiological function of the nose as the gateway of the respiratory tract is often so interfered with that pulmonary affections become much more frequent than before. There is still a limited field for surgery in the nose, but it must be remembered that many of the operations done so thoughtlessly are of considerable moment and demand for their proper accomplishment a previous surgical training. The entrance of a number of men into laryngology and rhinology without previous surgical training has undoubtedly hurt the surgical side of the specialty. The first principle of all medical treatment *non nocere* has only too often been flagrantly violated. Many a patient could have endured much better the nasal condition from which he was suffering than he can the results of operation that was supposed to relieve his symptoms. An occasional feeling of fullness in the nose is a good deal easier to bear than the scabs and constant dryness, with consequent discomfort, which will exist in the nose so persistently as the result of mutilating operations upon the nasal mucous membrane.

Medical News.

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

"NO MOSQUITOES, NO MALARIA."

It is probable that no one of the many diseases to which mankind is subject has been a more potent cause of physical degeneracy, or has in the aggregate claimed more victims, than what, for want of a better name and more accurate knowledge, has been termed "malaria."

The correctness of this designation, involving as it does an implied hypothesis as to the agency causative of the disease in question, has long been the subject of doubt, and recent research would seem to establish the fact that *mala aria* is not necessarily a determinative factor, although it may often be, and perhaps generally is, an associative condition of disorders of the malarial type.

The fact that the true morbid principle in malarial disease is not a mephitic gas or vapor of unknown composition was fully established by Laveran, who demonstrated the existence in the blood of the *plasmodium malarie*, a parasitic organism which infests the red corpuscles in malarial fever cases. These multiplying with enormous rapidity, by a process of sporulation or segmentation, create coincidentally with the segmentative stage, those periodic crises symptomatic of malarial disorders, and at the same time by impairing or destroying the oxygen carrying and other nutritory functions of the corpuscular blood elements (and possibly also by the secretion of as yet undetermined morbid principles) set up that series of degenerative changes in the general system which characterize diseases malarial in character.

Before the ravages of this scourge mankind was relatively helpless until the discovery by the Spanish conquerors of Peru

of the medicinal virtues of cinchona bark, perhaps the New World's most precious gift to the Old. The efficacy of this agent was, however, not fully available until the isolation of its alkaloidal principles more than three centuries subsequent to the employment by Europeans of the bark itself.

Even then its administration was entirely empirical. It was recognized as one of the few remedial agents entitled to rank as specifics, but the rationale of its action could not be determined until the demonstration by Laveran of its true germicidal action upon the *plasmodium malariae*, which he found to rapidly disappear from the blood under full medicinal doses of the drug.

This fact determined, there yet remained to be discovered the genesis of the germ and the channel of infection. While it cannot by any means be affirmed that these problems have been fully solved, much light has been thrown upon the etiology of malarial diseases by the discovery that certain genera of mosquitoes, more especially the genus *Anopheles*, of which there are several species, may act as the intermediate host for the malarial parasite, and that mosquitoes thus infected can and do communicate that infection to human beings by inoculation.

The connection between mosquitoes and malaria had long been suspected, and indeed has been a matter of popular belief in many of the countries in which malaria is prevalent. Medical literature furnishes numerous allusions to the possibility of this relationship. Dr. King, of Washington, in 1883, published a pamphlet in which he presents many facts confirmatory of the theory. It remained, however, for Dr. Patrick Manson, of England, in 1896, to definitely formulate the hypothesis and offer scientific evidence in its support. To him credit for the discovery is generally accorded.

In confirmation of the theory the following account (*Medical Record*, October 6th, 1900,) of an experiment but recently concluded in England is of interest:

"Three batches of *Anopheles* were fed in Rome by Dr. Bastianelli on three separate malarials (tertians), and forwarded in cages to the London School of Tropical Medicine. Dr. Manson's son, P. Thurburn Manson, was bitten every second day by the insects until they died—usually about ten days after their arrival in London. The first batch was fed in London on the first and second week in July, the second at the end of August,

and the last during the second week of this month. The subject of this experiment remained in perfect health till the morning of September 13th, when headache, boneache, lassitude anorexia, with rise of temperature to 102 degrees, set in. On the 15th there was a distinct intermission during the forenoon. High fever, 104 degrees, set in about 4 P. M., with delirium, relieved during the night by profuse diaphoresis. The same series of events recurred on the 16th. On the morning of the 17th tertian parasites were found in the blood."

As negative evidence that mosquito inoculation is the chief, if not the sole, agency in malarial infection, a highly interesting experiment has during the past few months been conducted in the Roman Campagna, one of the most fever stricken regions of the globe. The district in question abounds in stagnant pools formed from the streams which descend from the surrounding mountains and volcanic hills. These pools and the contiguous territory are infected by mosquitoes of the *Anopheles* genus. So deadly is the region that it is practically uninhabitable.

Here about two miles from Ostia was built, under the auspices of the British Colonial Office, a mosquito proof hut, in which Dr. Louis M. Lambon, Dr. E. G. Lowe, of the School of Tropical Medicine, and Signor Terzi, an Italian artist, with two Italian servants, took up their residence in June of the present year. They took with them no quinine or other prophylactic drug, drank freely of the water of the region, and lived an out-of-door life during the day, as the *Anopheles* bite only at night. Their only protection against malarial infection was the carefully screened hut, in which they remained from an hour before sunset until an hour after sunrise.

On September 12th they were visited by several Italian physicians, who verified their perfect health at that date. The experiment is to continue until the close of the malarial season, which, if the theory thus crucially tested is correct, should be coincident with the disappearance of mosquitoes before the cold of advancing winter.

The same line of experimentation has been pursued by other observers. Eugenio di Mattei reports (*Archivio per le Scienze Mediche*, No. 2, Vol. XXIV, 1900) that for thirty-two nights he, with four workmen, occupied a gauze-protected hut located in an extremely malarial region. During the day they

were engaged in arduous manual labor. Their diet was meagre, and they were without quinine or other antiperiodic. Neighboring workmen living under much the same conditions, but without protection against mosquitoes, contracted malarial fever, while those who occupied the mosquito-proof hut were entirely exempt.

In a paper by Professor C. Fermi and Dr. Tonsini, on "The Prophylaxis of Malaria and the Destruction of Mosquitoes in the Island of Asinara" (*The Lancet*, October 20th, 1900, translated from the *Annali d'Igiene Sperimentali*, Vol. X, Fasc II, 1900,) an interesting account of another experimental effort to prevent malarial infection is given. The island of Asinara is situated north of Sardinia, and is only inhabited by convicts, and by the staff of the lazaretto and the penal colony. As a preliminary to eradication measures the malarial centers of the island were carefully ascertained. They were found to be eleven in number, and the malarial foci appeared to be associated with brackish pools and marshes, and also with wells, cisterns drinking tanks and tubs, all more or less infected with the larvæ of *Anopheles*.

The preventive measures adopted consisted in frequent changes of water in all storage tanks, the destruction of the mosquito in the larval stage by petroleum, and of the adult mosquito by various insecticidal powders, such as pyrethrum, chrysanthemum, valerian, etc., and in the dormitories of the convicts by chlorine gas. As a further protection all dormitories were carefully screened.

The results reported are that the *Anopheles* was almost never found in any of the dormitories and the *Culex Pipens* was much diminished in comparison with former years; that no case of primary malaria originating in the island was observed, although in the preceding year there had been ninety-nine cases, of which forty had been contracted on the island.

While the stamping-out process thus outlined presents comparatively few difficulties in an island of small area, the attempt would seem to be utterly hopeless as applied to the vast reaches of mosquito-infected swamp and morass found in this and other countries. Fortunately, however, mosquitoes are not migratory, and in any given neighborhood are not usually found far from their breeding places. Hence, there is every reason

to hope that carefully and persistently conducted preventive measures will greatly limit the number of these pests, even if they do not entirely eradicate them. Manson suggests the following modes of prophylaxis:

"1. To begin by administering quinine for long intervals to all cases of malarial fever, since a single man is a source of infection to a whole locality. 2. To cause all persons suffering with malarial fever to sleep under mosquito netting. 3. To compel all the uninfected to sleep in mosquito-proof houses or beds. 4. To kill by different culicicides all mosquitoes entering houses. 5. To destroy all the mosquito larvæ before they reach maturity or the biting stage—to which might be added the destruction of the adult mosquitoes in their places of hibernation. And, 6, a combination of all these methods."

A culicicide to be commercially available must be cheap as well as effective. As far as ascertained the agent which best meets these conditions is petroleum; a thin film of this spread over the surface of an infected pool will in a few hours destroy all larvæ. Dr. Albert Woldert finds after a carefully conducted series of experiments (*Journal American Medical Association*, October 13th, 1900), that by macerating a certain proportion of tobacco in the oil its efficacy is somewhat increased.

If the results thus outlined are confirmed by subsequent experiments, and the dictum "no mosquitoes, no malaria" stands the supreme test of time and practical experience, the old medical aphorism, that a disease is already half cured when its cause is known, will find a new illustration, and in the annals of a century already made illustrious by the discovery of anæsthesia and antiseptics will be recorded a hardly less epoch-making triumph for the healing art.

Questions and Answers.*

Question 106. Do you consider the practice of cutting the teeth from the plaster cast advisable when the cast is to be used as a model for molding for a zinc die? *H. H. P.*

If many teeth are remaining scattered about the mouth the practice referred to has numerous advantages. In the first place it simplifies making the mold, and, secondly, changes the swaging process from one full of complications to one of pronounced simplicity. Leaving the teeth on serves no good purpose, except as a guide for mounting the porcelain teeth, and this can be accomplished much better by taking a second impression of the mouth with the plate in position, this procedure giving the relation between the plate and the natural teeth. It is the practice of some to break the teeth from the plaster cast, and mold and swage over this broken surface, after which the fractured teeth are replaced, and the original model used for mounting. This method is much better than leaving the teeth on, but not so good as cutting them down and rounding off the stumps. One very great advantage in swaging over the rounded stumps is that a very accurate adaptation of the margins of the plate to the neck of the tooth is obtained. Of course it is not always desirable to have the margins of the plate in actual contact with the necks of the teeth, but in general outlines these margins should accurately follow the curvatures produced by the surfaces of the remaining teeth. I would say most emphatically to always cut off the plaster teeth.

* * * * *

The practice of cutting the teeth from a plaster cast preparatory to using it as a model for a metallic die is inadvisable—it is unworkmanlike. It ruins it for use later, when the presence of the plaster teeth in accurate relation to other portions of the cast is imperative. A skilful workman is able in all ordinary cases to obtain a metallic die sufficiently accurate without resort—

*Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

ing to this expedient. The art of so doing is well worth cultivating. Filling in, around the necks of the teeth, or building out with yellow wax at this point, so as to measurably correct leaning or ill-shaped teeth, will frequently prove a decided help. The inaccuracy this causes in the die is readily corrected by means of a cold chisel, with a properly shaped, sharp cutting edge, and the file and graver. In extreme cases resort may be had to cores; this is, however, seldom necessary. I prefer in such cases to take a plaster impression of the cast, allowing it to cover those portions only actually needed in the die; and from this make a duplicate cast to serve as a model for the dies, and for use in fitting the plate. We thus preserve intact the original, for use in fitting clasps or arranging the teeth. In exceptional cases, where the removal of the plaster teeth may seem best, it is better to make a slight saw cut at the point where it is desired that the tooth should break, and carefully break it off with a clean fracture, protecting this fractured surface on the cast with a covering of wax until the dies have been made and the plate fitted. The tooth may then be replaced by cementing with hard wax. Even with the greatest care we never can be sure of its accurate replacement. A very slight change will, at times, make serious trouble, if the tooth is to be clasped, or it is a tooth against which a tooth is to be closely fitted.

The destruction of the original cast by cutting off the teeth necessitates a second cast for adjusting clasps and teeth. This, if made from a second impression, will seldom, if ever, be an exact duplicate of the first. The plate will not fit a cast from it as accurately as it does the one on which it was made, nor yet as it fits the mouth. If the plate is in position in the mouth while the second impression is being taken, it is apt to be displaced during the operation. I consider it far better to cultivate skill at the molding bench. With the sand in good order, the judicious use of those little expedients learned by practice; careful manipulation of the mold, replacing portions of sand partially dislodged, and at times building out or restoring portions drawn away with the model, it is surprising how accurately, and how easily an apparently impossible model may be reproduced in the die. It should be a workman's ambition to return, with the finished denture, the model upon which it was made in as good order as it was received.

Naaman H. Keyser, Germantown, Phila., Pa.

Question 107. I should like your opinion in the following case. I made a denture for a patient who for some time had been complaining of excessive dryness of the oral mucous membrane, feeling that perhaps the insertion of the plate under such conditions would remove the trouble. Contrary to my expectations, the gentleman is unable to wear the plate because there is now present not only the dryness of the membrane, but also extreme heat, this latter sensation being so marked that he is compelled to remove his plate to obtain relief. Very frequently after wearing the plate for a short time, the membrane becomes so inflamed that it peels off with the removal of the denture. He complained also of a continual throbbing sensation in his gums when the plate is in his mouth.

F. H. Blaschka, Waterloo, Wisconsin.

See the answer to "P. S. T.," in "Questions and Answers," November number of the BRIEF. You do not say what kind of a plate was inserted, but it is presumed that you mean vulcanite rubber. It is not at all likely that the presence of a plate in the mouth, be it metal or plastic, would assist in relieving the discomfort spoken of, but without doubt the non-conductibility of rubber would be the more objectionable, and would tend to increase, rather than relieve, the condition.

In reply to "J. L. G." I desire to submit the following, my opinion being based on the actual observation of a similar case in the living subject. In the case reported by "J. L. G." I would say that without doubt the condition was one of dental origin, an excessive and chronic enlargement of the pericemental tissue about the apex of the root being responsible for the wholesale destruction of the bone at the base of the alveolus and about the floor of the nares. The bone did not have the appearance of necrosis because it could not be considered such. One of the characteristics of the cancellated bony structure forming the alveolus is its readiness to succumb to the pressure of hypertrophied soft tissues, and where absorption takes place from this cause the surface of the destroyed area is smooth, as shown in the case reported. The case which came before me was one in which a chronic enlargement occupied the space immediately over the left central incisor. The patient would not consent to an operation until the growth became so large that she was compelled to do so. After an incision through the parts, it was found that a tumor-like growth was attached to the apex of the root of the tooth, this gradually causing destruc-

tion of the outer plate of the alveolus and forming a saucer-shaped depression on the inner plate. The pulp in the tooth was dead and the tooth very loose from lack of bony support.

I. T., Buffalo, N. Y.

Question 108. Can you describe a successful method of opening the bite and arresting the progress of abrasion, by placing caps over certain natural teeth? The teeth of a male patient over forty years of age are very much worn by mechanical abrasion, those of the upper jaw on the right side being thus affected, while the teeth of the lower jaw on the left side show a similar condition. In the anterior part of the mouth, the lower teeth with their cutting edges somewhat abraded, fit into deep oblong depressions worn into the palatal surfaces of the upper teeth. Is there not some method by which this gradual but sure destruction may be checked? Nearly all the teeth are more or less sensitive, and the jaws are deformed by the close bite.

The condition you describe is one rather difficult to cope with. Involving as it does some mechanical addition to every tooth in the mouth, it means in the first place considerable expense. Secondly, the close proximity of the pulps to the surface would necessitate their destruction in order to properly adapt any sort of an appliance, and in addition to this the completed restoration would be unsightly. But with all these drawbacks the parts may be restored to usefulness by certain methods of capping, or building up of the abraded surfaces. If the teeth are hard, as they usually are under such circumstances, partial gold caps may be fitted over each one, beginning with the back teeth, and establishing the proper distance between the jaws at this point. By a partial cap is meant one that envelopes only a portion of the crown of the tooth, just enough to give the cap support, leaving the balance of the tooth surface free, and avoiding the possible gingival irritation so frequent when gold bands are in contact with it. In 1897 Dr. M. F. Finley described before Section 1, American Dental Association, his method of building up molars that had suffered from mechanical abrasion. This was accomplished without the destruction of the pulp. The occlusal surface was ground off to a level plane, and four holes parallel with each other and perhaps an eighth of an inch in depth were drilled at each angle of the crown. Gold caps were swaged, fitted and filled to the desired thickness, four posts were soldered to the under surface and cemented in

position in the holes made for their reception. (See page 239 Transaction A. D. A., 197.)

Question 109. What other substance beside sodium chlorid will hasten the setting of plaster of Paris and at the same time increase its hardness?

Many experiments have been made to determine the effect of various agents on calcium sulphate, nearly all of them resulting in extending the time required for the mass to harden, and to a greater or less degree interfering with its quality. Mixed in water to which has been added glycerin the proportion of one to four, the setting process will be extended to one hour and ten minutes. A twenty-five per cent. of glue water will delay the setting to about one hour; albumin in various proportions added to the water will also retard the setting process. While there may be other agents which will assist the mix to harden more quickly there are none so reliable and readily applied as sodium chlorid. While glue water increases the time, it eventually results in an extremely hard mass.

HENRY H. BURCHARD, M.D., D.D.S.

At the regular meeting of the Academy of Stomatology held Tuesday evening, October 23d, 1900, the Committee on Resolutions upon the death of Dr. Henry H. Burchard, submitted the following, which were accepted and adopted:

WHEREAS, Henry H. Burchard, M.D., D.D.S., has been removed by death from the scene of his toils and his honors; therefore, be it

Resolved, As the sense of this society, that in the death of Dr. Burchard the Academy of Stomatology has lost one of its most brilliant and useful members and the dental profession one of its most earnest workers. As one of its organizers he was foremost in the endeavor to establish the Academy of Stomatology upon a plane of high professional usefulness, and was ever active in advancing its interest by contributing his own work and enlisting the coöperation of others. He gave unselfishly of his energies and best endeavors, even when physically unfitted for the task. His active brain not only stimulated thought and discussion at the sessions of the Academy, but his sugges-

tive help in the ordering of its affairs was always a material aid in its progress. He was earnest and enthusiastic in his efforts to impart his knowledge to others. As a teacher he was clear, logical and forcible. These qualities he evinced both as a writer and as a speaker. As a man Dr. Burchard was genial and affable in disposition, ever ready to sacrifice his own time and strength whenever it was within his power to aid others, and especially those who were earnestly working in the field of dental advancement. In his brief and brilliant career as writer and teacher he had attained remarkable distinction, and though his untimely decease has occurred at an age when the promise of still greater achievements seemed clearly before him, he nevertheless attained an eminence in his profession as teacher, writer and investigator seldom reached by others, and less frequently by those of his short period of life.

Resolved, That these resolutions be spread upon the minutes of the Academy, and that a copy be transmitted to his family, and be published in the dental journals.

Edwin T. Darby,

S. H. Guilford,

Edward C. Kirk,

Archibald C. Eglin, Secretary.

INSTITUTE OF DENTAL PEDAGOGICS.

The eighth annual meeting of the Institute of Dental Pedagogy will convene on Thursday, December 27th, 1900, at 10 o'clock A. M., at the Maxwell House, Nashville, Tenn. Sessions: December 27th, 28th, 29th.

OFFICERS.

President—Harry P. Carlton, San Francisco, Cal.

Vice-President—George E. Hunt, Indianapolis, Ind.

Secretary and Treasurer—H. J. Goslee, Chicago, Ill.

EXECUTIVE BOARD.

Henry W. Morgan, Nashville, Tenn., one year.

David M. Cattell, Chicago, Ill., two years.

Walter E. Willmott, Toronto, Canada, three years.

MASTER OF EXHIBITS.

George H. Wilson, Cleveland, Ohio.

LOCAL ARRANGEMENT COMMITTEE.

Henry W. Morgan and J. P. Gray.

THURSDAY, DECEMBER 27.

10 A. M.—Organization; Executive Business.

10.30 A. M.—President's Address.

Discussions—Drs. J. Taft, W. F. Litch, H. B. Tileston, F. W. Weisse, W. C. Barrett.

12 M.—The Use of Flexible Rubber in Orthodontia and Other Technic Teaching. Dr. J. Q. Byram.

Discussions—Drs. S. H. Guilford, C. S. Case, Walter H. Funderburger, W. W. Evans, W. E. Grant.

2 P. M.—Teaching of Materia Medica and Therapeutics, How and How Much? Dr. A. H. Peck.

Discussions—Drs. James Truman, John I. Hart, S. W. Foster, G. E. Hunt, J. D. Patterson.

5 P. M.—Exhibit Open.

8.15 P. M.—The Use of the Lantern in Teaching Dental Histology in Its Relation to Operative Dentistry. Dr. Fred. Noyes.

Discussions—Drs. I. N. Broomell, A. H. Thompson, W. G. Foster, H. T. Smith, Louis Leroy.

FRIDAY, DECEMBER 28.

9 A. M.—Exhibit Open.

10 A. M.—Presentation of the Technic of Crown and Bridge Work, Metal and Porcelain. Dr. Thos. E. Weeks.

Discussions—Drs. Otto Arnold, Fred. R. Sandusky, R. H. Nones, N. S. Hoff, H. R. Jewett.

1 P. M.—Exhibit Open.

2 P. M.—Class Room Method of Teaching Oral Surgery. Dr. G. V. I. Brown.

Discussions—Drs. M. H. Cryer, T. S. Gilmer, Eugene Talbot, J. Y. Crawford, E. M. Kettig.

4 P. M.—A New Feature in Teaching Dental Anatomy and Operative Technic. Dr. A. E. Webster.

Discussions—Drs. E. C. Kirk, G. V. Black, Wm. A. Montell, G. W. Dittmar, W. H. Whitslar.

SATURDAY, DECEMBER 29.

9 A. M.—Exhibit Open.

10 A. M.—Class Room Method of Teaching Prosthetic Technic. Dr. Grant Molyneaux.

Discussions—Drs. J. H. Kennerly, J. P. Gray, J. Bond Lit-tig, T. M. Allen, A. O. Hunt.

11.30 A. M.—Reports of the Committees on Syllabi of Op-erative and Prosthetic Technics.

Exhibits should be shipped to the Maxwell House, care Dr. J. A. Dale, or Dr. G. H. Wilson, Master of Exhibits, with college name on it before the holiday rush.

All teachers are cordially urged to attend these meetings. Every school should be represented.

Fraternally,

Henry W. Morgan,

David M. Cattell,

Walter E. Willmott,

Executive Board.

PATENTS OF INTEREST TO DENTISTS, RECENTLY GRANTED.

659,886, Dental cervical clamp, Courtland G. Capewell, Bos-ton, Mass.

659,747, Dental vulcanizer and celluloid press, Henry Hart-wig and A. W. Feltmann, Chicago, Ill.

659,871, Dental articulator, Theodore G. Lewis, assignor to Buffalo Dental Manufacturing Company, Buffalo, N. Y.

659,684, Dental rubber-dam holder, John A. W. Lundborg, San Francisco, Cal.

660,411, Dental plugger, Robert Blum, Corpus Christi, Texas.

660,434, Dentifrice bottle, Carl G. Hilgenberg, and H. R. Loper, Baltimore, Md., assignors to Carr-Lowrey Glass Com-pany, Baltimore, Md., and New York, N. Y.

660,194, Tooth-straightening appliance Clarence D. Lukes, St. Louis, Mo.

660,172, Dental cuspidor, Herbert J. Tarr, Chicago, Ill.

660,319, Apparatus for making seamless tooth crowns, Joseph F. Twist, San Francisco, Cal.

660,677, Tooth brush, David J. Archer, Toronto, Canada.

660,943, Preparing dental remedies, Hermann Bauermeis-ter, Brunswick, Germany.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Build-ing, Washington, D. C.

Practical Points.*

To Save on Cost of 22-K. Gold Plate.—Roll United States gold coin (21 6-10 k.) and save \$1.40 on each \$5 worth. A \$5 gold piece weighs 5 pennyweights and ten grains.

J. G. Templeton, Dental Register.

Removal of Tartar.—If 50 per cent. solution peroxide of hydrogen is prescribed as a mouthwash for several days previous to operating, it will greatly facilitate scaling off heavy deposits of hard tartar.

Wallace Wood, Jr., Dental Hints.

Investment Material for Gold Soldering.—Equal parts of finely sifted coal ashes and plaster of Paris makes as good an investment as any I have tried, and is about as cheap and convenient as anything else.

R. E. Sparks, Dominion Dental Journal.

For Setting Crowns.—Mix, with heat and careful working, one part of gutta-percha and three parts of vermilion. For setting porcelain crowns with pin extending into the root canal, or gold crown and cap, this will be found thoroughly resistant to the action of the fluids of the mouth.

W. H. Rollins, Ohio Dental Journal.

Painful Erosion.—The following application to eroded spots that are painful will be found useful:

R. Gum mastich (powder).....	3i.
Zinci chloridi.....	℥v.
Chloroformi.....	℥ss.

To be used as a paint. *J. Royston, Dental Record.*

Incisor Crowns.—Instead of building up the lingual wall to the natural contour leave it concave, to enable the lower tooth to bite into the hollow, so that should any rising of the lower teeth take place it would drive the upper root up into the socket rather than allow it to be pressed outward, as is so frequently the case when the tooth is built up to the original shape.

G. O. Whittaker, Journal British Dental Association.

Retention of Corner Inlays.—To retain a small corner or an incisor, it is sometimes advisable to form a groove at the base of the cavity, pushing a staple of platinum wire through the bottom of the matrix, held in position with a little dampened body, the whole withdrawn from the cavity and baked. If something of this kind is not done the corner is liable to become dislodged from a very slight strain.

F. J. Capon, Dental Cosmos.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Bay St. Louis, Mississippi.

To Cleanse the Cement Slab.—Keep a bottle of ammonia water convenient for cleansing your cement slab and instruments.

A. M. Jackson, Dental World.

To Prevent Profuse Flow of Saliva.—A dose of sulphate of atropin (1-120 gr.) three-quarters of an hour before operating, will secure a very convenient though not uncomfortable dryness of the mouth, lasting from four to five hours.

H. Otis Longue, Southern Dental Journal.

Sensitive Dentin.—Carbolic acid crystals and cocain hydrochlorate rubbed together with a spatula until the cocain is dissolved, forms a thick syrup which is escharotic, antiseptic and obtundent, and gives the most gratifying results in the treatment of sensitive dentin.

C. B. Rohland, Welch's Dental Magazine.

Amalgam Fillings in Deciduous Teeth.—Some thirteen or fourteen years ago, Dr. J. T. Crawford looked into the mouth of my little boy, and seeing some amalgam fillings which I had placed in his posterior teeth, said: "I want you to notice the effect of that amalgam upon those teeth; those which have been filled with amalgam will not shed as soon as the others." This proved to be true, and since that time I have not filled the teeth of children with amalgam, knowing that it retards absorption of the roots.

J. A. Chapple, Items of Interest.

Spraying Cavities and Keeping Them Free of Debris.—I attach a piece of rubber tubing (about 5 feet long and $\frac{1}{4}$ inch diameter) to my compressed-air cylinder; pressing a spring-clip regulates the stream of air, or liquid, as case may be, and is a great time-saver as there is no need to stop the engine to pick up a chip-blower or syringe. It is almost indispensable in grinding down teeth for crowns. The cylinder costs about \$20, does not occupy much space; fifty lbs. pressure of air lasts several days.

A. M. Jackson, Dental World.

The Ledge Crown.—The root having been properly prepared for crowning, and shaped with flat top, and the band fitted and trimmed with reference to both the gum margin and the occlusal edges, a flat piece of gold plate is welded to the occlusal end of the band and trimmed flush with the outside of the band. The central portion is then cut out, leaving a narrow ledge extending from the circumference towards the center, all around. The hollow cusp or occlusal surface is then soldered to the band as usual, the whole placed in position and the patient allowed to press firmly on the soft yielding surface, thus giving a perfect occlusion. The cusps are then filled with solder, the ledge effectively preventing the solder from climbing up the sides of the band, and insuring a solid, heavy grinding surface, with uniformly flat bottom.

J. K. Burgess, Dental Cosmos.

Aseptic Cement.—Mix iodoform or aristol with the powder of cement in placing crowns, bridges, or in substrata under cement fillings. Destroys septic germs from the fluids of the mouth.
B. H. Teague, Dental Hints.

The Gold Inlay; Protecting the Cement Joint.—Protecting the cement joint by beveling fully and carrying the gold over the bevel, is the vital principle of the gold inlay. The impracticability of extending porcelain in thin edges is often against the use of the porcelain inlay.

W. V. B. Ames, Dental Cosmos.

Amalgam as a Filling Material.—One of my objections to amalgam is that it is productive of pulp stones, one of the most annoying things a dentist has to contend with. After long observation and careful study I am well satisfied that this is true. There is no doubt but that all metals employed in filling teeth are more or less responsible for the production of pulp stones, but it is especially true of amalgam.

J. Y. Crawford, Items of Interest.

Treatment of Pulpless Deciduous Teeth.—Open pulp chamber; allay soreness by dressings of old wood creasote; fill pulp chamber half full of cotton moistened and rolled in pulverized nitrate silver; cover with temporary stopping for ten days. Remove the dressing; excavate the crown cavity; syringe carefully with Pasteurine; bathe with creasote; fill cavity with amalgam, making no effort to cleanse or fill the pulp canals. Have not had a single case of abscess after the above treatment and no symptoms of after trouble.

L. G. Nael, Welch's Dental Magazine.

The Pneumophone.—This apparatus consists of a motor which operates a pump producing different forms of pneumatic action according to the position of a lever. In one position the action is strictly *blowing*; in another there is an alternating action of blowing and sucking; still a third is of a sucking nature. Little glass tubes of different shapes to fit the variations of form of the different parts of the mucous membrane attach to the end of the rubber tubing that connects with the pump. The action is valuable in giving pneumatic massage, in increasing the nutritional condition of the gums, and the tone of the alveolus generally, especially in certain forms of pyorrhea and erosion.

M. L. Rhein, Dental Cosmos.

For Relief of Reflex Pains from Diseased Pulp.

R. Acetanelid..... grs. viii.
 Phenacetin..... grs. xv.
 Caffeine citrate..... grs. xv.
 Misce et ft. pulv. No. viii.

Sig.—One to be taken every two hours.

Leo Greenbaum, International Dental Journal.

Cement for Broken Casts.—Dissolve sheet celluloid in ether, making a thick creamy paste. Coat the broken surfaces thickly and hold together for a few minutes; allow to harden not less than three minutes before handling. *Dental Weekly.*

Platinum and Gold Plate.—Melt with blowpipe pure gold on a piece of platinum plate, and roll to desired thickness, thereby saving thirty cents per pennyweight over buying the same from a supply house.

J. G. Templeton, Dental Register.

Gutta-Percha in Setting Inlays.—Wherever an inlay can be placed in a tooth, the pulp of which has been destroyed—and it is possible to get a pin to go into the root—use gutta-percha always and forever, and I am satisfied you will never regret it.

F. N. Brown, Dental Cosmos.

Removal of Gum Tissue From Over Third Molars.—I use a rotary trephine knife in the engine, and it works well. The beauty of it is you not only cut, but you take your chips with you. I use a local application of guaiacol on the surface first.

Dr. Price, Ohio Dental Journal.

Repairing Broken Plaster Models.—Attach weak or broken models to the articulator by setting in a soft mat of modeling composition, instead of a mix of plaster. They are easily detached by softening the composition in hot water, while in separating from plaster breakage is almost sure to occur.

B. H. Teague, Dental Hints.

A Place for the Porcelain Inlay.—My practice has been to use the inlay in the first half or two-thirds of a proximal cavity, never bringing it to the grinding surface, anchoring it with cement and then filling the remainder of the cavity with gold, burnishing it over the inlay, leaving the foil filling as the masticating surface of the tooth. I have found these operations to be admirable, especially when the walls are frail, as the cement strengthens the wall, while burnishing up to the wall from without holds the inlay admirably; the foil filling for the surface being less easily displaced than the inlay, is very satisfactory.

C. S. Butler, Dental Cosmos.

Taking Impression of Mouth with Very High Vault.—A flat piece of copper or German silver plate, shaped like the outline of the letter U, and of size to approximately fit against the sides of the vault some distance below its deepest portion, and to which is affixed a removable handle of heavy copper wire bent at right angles, is used to carry a body of plaster to the high, inaccessible part of the palate. When the plaster has hardened the handle is withdrawn, leaving the plate and plaster in position; the major part of the impression is then taken in the usual way, and the complete impression, in two pieces, removed and fitted together out of the mouth.

Dr. Tomasku, Dental Record.

Decalcified Dentin.—Permeate the softened dentin with oil of cassia. Dry the surface with chloroform and fill with aristol mixed with chloro-percha. This becomes hard and glossy when the chloroform has evaporated. Finish with cement.

B. H. Teague, Dental Hints.

To Secure a Smooth Surface to Vulcanized Plate.—Dilute the liquid silex with twice its quantity of alcohol. With camel's hair brush paint the model within and without. This gives a smooth surface and is much less trouble than using tin foil, etc.

Wm. Crenshaw, Dental World.

To Give Relief in Case of Pulpitis.—In many cases the application of hot water to the neck, and above the ear, of the affected side, by means of heavy toweling—six or eight thicknesses, soaked and partially wrung out, will prove efficacious if continued for from five to ten minutes.

A. W. Harlan, Dental Cosmos.

Grinding Porcelains.—Many operators seem to be afraid of grinding the labial surface of crowns for fear of destroying the lustrous surface of the facing. I grind and mutilate—so to speak—until I have obtained the desired shape; it is then made smooth with fine sandpaper, and put on a buff of cotton batting, using pumice first, then whiting, which brings a gloss more in keeping with the adjoining natural teeth.

F. J. Capon, Dental Cosmos.

Miscellany.

Absorption of Medicine in the Stomach.—Professor Moritz has been studying this subject with sodium salicylate, potassium iodid and pulverized charcoal administered before, during and after meals, investigating the results with the stomach pump. They confirm the results already empirically established, although he was surprised at the rapidity with which water and any much diluted medicine passes out of the fasting stomach. A medicine given with milk, soup, wine, oil, etc., leaves the stomach much less rapidly; still slower if taken with the meals, and so slowly after a meal that in case of hepatic colic, etc., occurring after a meal, morphin should be administered subcutaneously or per rectum. Fluids like soup, milk, oil, etc., cause a secretion of gastric juice, and the motor function of the stomach is proportionately less as the secreting function is active. He confirms the benefits of a mucilaginous vehicle in protecting not only the stomach, but the intestines from irritation, recommending that digitalis be thus administered, and mentions as progress Sahli's "glutoid capsules" made of gelatine hardened formaldehyde; practically insoluble in the gastric juice, but readily dissolved by the pancreatic secretions.

Chronic Brass Poisoning.—Dr. W. Murray describes the condition of chronic brass poisoning as seen by him in Birmingham, Eng. The first indication of poisoning is the existence of anæmia, with its usual accompaniments of palpitation and dyspnœa on exertion, dyspepsia, etc. Even prior to the first symptoms of poisoning one may discern a green line upon the teeth. It is on the teeth, and forms a band of varying depth in front of the bases of the teeth just where they emerge from the gums, and most marked on the teeth of the upper jaw. This line is only an indication of exposure to brass, not of actual poisoning. As the disease progresses there is gradual emaciation and aggravation of the various symptoms (dyspepsia, etc.). Diarrhoea is seen only in the later stages of the disease. Neuralgic pains and great nervousness are common. Cough is constant. Profuse sweatings occur in many cases. While admitting that brass poisoning is chiefly due to the copper in the brass, yet the writer holds that the zinc also plays a part. Potassium iodid is of little service. The writer has found phosphorus, in the form of dilute phosphoric acid, fifteen minims three times a day, almost a specific. In many cases the patients did not discontinue work, and yet recovered under its use.

New York Medical Journal.

Beer Drinking by Children.—Stumpf, of Munich, called attention in forcible language to the lamentable habit of the Müncheners of giving beer to their children. It is a frequent occurrence, he states, to see children of two years, and even of one year, drinking out of the beer mugs of their parents. In the women of Munich the excessive consumption of beer leads, among other disorders, to a huge fat-development in the breasts; thereby the function of the organs is impaired, and it becomes necessary to resort to artificial feeding, with all its disastrous consequences. From the figures given by Stumpf one can form an idea of the appalling capacity of the Bavarians. In a population of 5,818,544 the annual per capita consumption of beer is 243 liters, or over 250 quarts, representing an outlay of nearly \$15 per annum, or, for the whole population, an expenditure of \$84,834,122. And this only for a single article—beer!

From a purely economic point of view, a reform of such conditions is necessary, and from the standpoint of national character, the reform is imperatively demanded. The success of the temperance movement in England and America has served to encourage the German agitators. It is to be hoped that the habits of the nation, which are probably ineradicable, may at least be modified on a national basis so that science and art may continue to reap the benefit of all that is noblest and best in the German character.

Philadelphia Medical Journal

Arsenic and Copper in Enameling Materials.—Specimens of kryolite and of fluor-spar, intended to be used in the enameling of cooking pans, have been examined by Dr. Van Hamel Roos, of Amsterdam. He reports finding a considerable amount of arsenic in the kryolite, and of copper in the fluor-spar. The German firm which was supplying these substances to certain Dutch enamelers was at once warned to stop the sale, and the facts were made public. Dr. Van Hamel Roos mentions that some time ago he found lead in a specimen of kryolite intended for enameling, and explain that the presence of these dangerous substances is due to the fact that the minerals in question are associated in the crushing process with minerals containing arsenic, copper and lead. The great danger attending the use of these poisonous materials for enameling cooking utensils is too obvious to need comment.

British Food Journal.

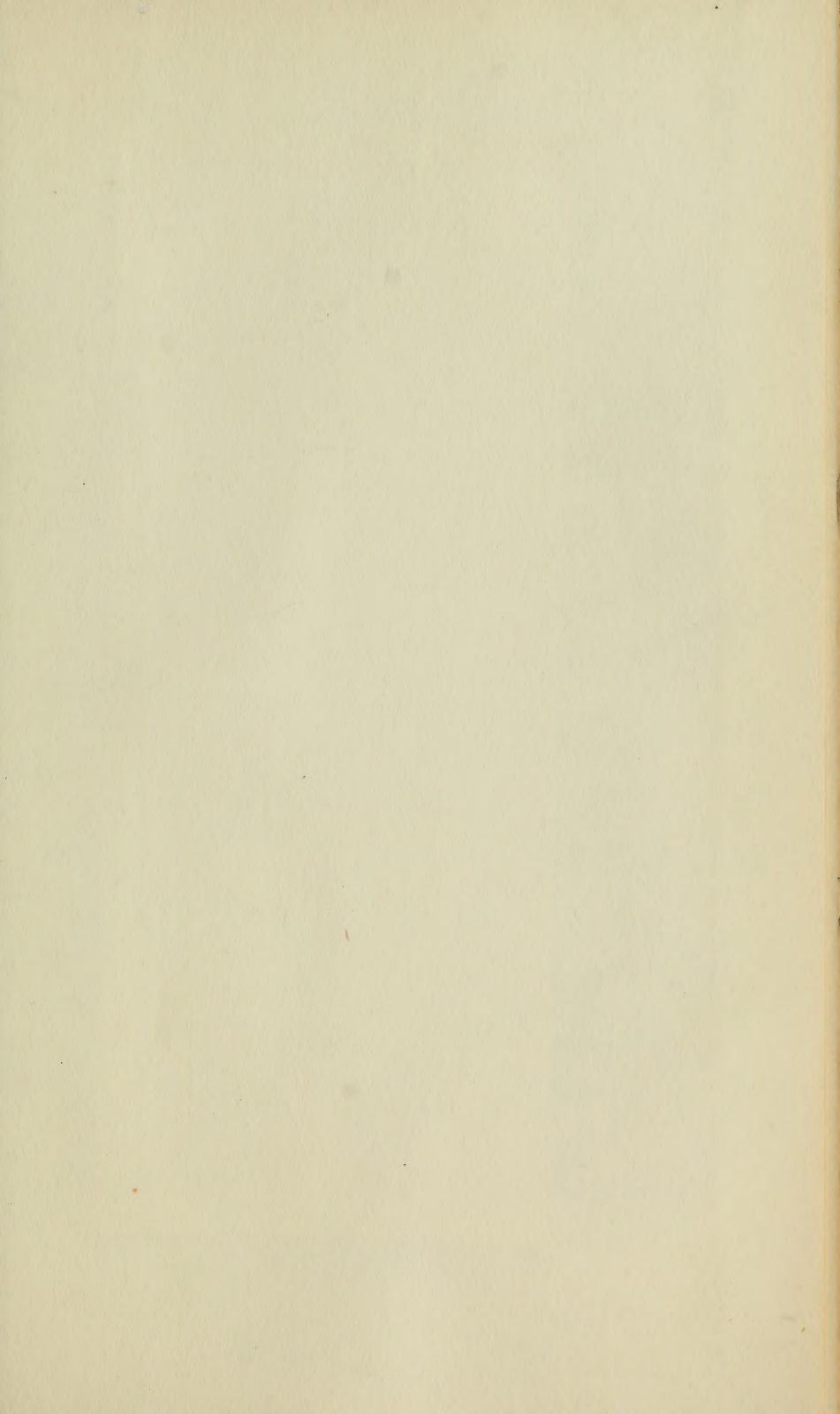
Burden of Proof as to Value of Dental Services.—In *Harrington vs. Priest*, wherein it was sought to recover \$250 for dental services, and the defendant set up a counterclaim for \$1,000 damages for poor work, the Supreme Court of Wisconsin reverses a judgment for the plaintiff, on account of error in the instruction given the jury. It holds that the burden of proving that the services rendered were performed with reasonable skill, and were worth the sum mentioned was on the plaintiff. And it approves of the instruction: "The burden of proof, so far as this case is concerned, rests upon the plaintiff to establish his side by a fair preponderance of the evidence, which is sometimes called the "down weight of evidence." If you find from the testimony, as I say, that the plaintiff did this work in a reasonably careful and skilful manner—in such manner as dentists of ordinary standing, of good standing in this community or this vicinity would have done it—and that the price he has charged is a reasonable price, then you should return a verdict in favor of the plaintiff for the full amount claimed." But the Supreme Court says that the judge went wrong when he added to this the further and inconsistent charge that, in establishing the fact that work was improperly done, the burden was on the defendant. Confessedly, says the Supreme Court, the plaintiff had the laboring oar. There was no burden on the defendant, on this issue, to show affirmatively that the services in question were negligently or unskilfully performed, or that they were not worth the sum claimed. If his evidence in defense left the issue in doubt or uncertainty, the plaintiff could not recover. Under these circumstances, it could not be true that the burden rested on the defendant, "in establishing the fact that the work was improperly done." But, when it came to the question of damages under the counterclaim, or the other issue, then, the court goes on to state, the defendant could not secure a recovery except that he establish a claim therefor by the preponderance of the evidence.

Jour. Amer. Med. Asso.

The Century's Chief Characteristic.—What has been the chief characteristic of the nineteenth century? No two critics agree, nor can they, because each prefers a different quality. One singles out science, another invention, as the dominant trait. A third, who looks mainly at the political aspect of life, says democracy. Others, again, say pessimism, philanthropy, doubt or toleration. So many features, so much diversity, argue at least for many-sidedness.

There is one characteristic, however, which distinguishes the nineteenth century from all previous centuries—a characteristic which has become too common to attract the attention it deserves, although it really masters all the rest; this is longevity. During the past hundred years the length of life of the average man in the United States, and in the more civilized parts of Europe, has increased from a little over thirty to about forty years. A multitude of causes, mostly physical, have contributed to this result. Foremost among these should be placed (1) whatever may be included under the general term sanitation; (2) improved methods in medicine, and (3) the more regular habits of living, which are the direct outcome of industrial life on a large scale. These are some of the evident means by which life has been lengthened. Inventions, which have made production cheap, and the transportation of all products both cheap and easy, have had an influence too great to be computed. And no doubt, much has been due to a general improvement in methods of government; although, in the main, there has been much less progress in practical government than is commonly supposed. No great railroad company or banking house or manufacturing corporation could prosper if its officers and employés were chosen and kept in office according to the system by which political offices, almost everywhere, are filled. "None but experts wanted," is the sign written over the entrance to every profession, trade and occupation—except government.

But, whatever governments have done or left undone the fact to be insisted on here is, that the average man to-day lives almost ten years longer than his grandfather lived. Indisputably, therefore, the year 1900 finds conditions more conducive to longevity than existed a century ago. This is true beyond question for the masses, who feel immediately the effects of plenty, hunger and cold—the great physical dispensers of life and death.—*The Forum*.



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